Samuel K Lai

List of Publications by Year
in descending order

85 papers	8,010 citations	109321 35 h-index	58581 82 g-index
89 all docs	89 docs citations	89 times ranked	9142 citing authors

#	Article	IF	Citations
1	Mucus-penetrating nanoparticles for drug and gene delivery to mucosal tissues. Advanced Drug Delivery Reviews, 2009, 61, 158-171.	13.7	1,432
2	Micro- and macrorheology of mucus. Advanced Drug Delivery Reviews, 2009, 61, 86-100.	13.7	919
3	Rapid transport of large polymeric nanoparticles in fresh undiluted human mucus. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 1482-1487.	7.1	875
4	Antiâ€<scp>PEG</scp> immunity: emergence, characteristics, and unaddressed questions. Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology, 2015, 7, 655-677.	6.1	425
5	Nanoparticles reveal that human cervicovaginal mucus is riddled with pores larger than viruses. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 598-603.	7.1	321
6	PEGylation for enhancing nanoparticle diffusion in mucus. Advanced Drug Delivery Reviews, 2018, 124, 125-139.	13.7	273
7	Analysis of Pre-existing IgG and IgM Antibodies against Polyethylene Glycol (PEG) in the General Population. Analytical Chemistry, 2016, 88, 11804-11812.	6.5	240
8	Privileged delivery of polymer nanoparticles to the perinuclear region of live cells via a non-clathrin, non-degradative pathway. Biomaterials, 2007, 28, 2876-2884.	11.4	237
9	Human Immunodeficiency Virus Type 1 Is Trapped by Acidic but Not by Neutralized Human Cervicovaginal Mucus. Journal of Virology, 2009, 83, 11196-11200.	3.4	217
10	Evading Immune Cell Uptake and Clearance Requires PEG Grafting at Densities Substantially Exceeding the Minimum for Brush Conformation. Molecular Pharmaceutics, 2014, 11, 1250-1258.	4.6	216
11	The Binding Site Barrier Elicited by Tumor-Associated Fibroblasts Interferes Disposition of Nanoparticles in Stroma-Vessel Type Tumors. ACS Nano, 2016, 10, 9243-9258.	14.6	161
12	Lung gene therapy with highly compacted DNA nanoparticles that overcome the mucus barrier. Journal of Controlled Release, 2014, 178, 8-17.	9.9	160
13	Rapid transport of muco-inert nanoparticles in cystic fibrosis sputum treated with N-acetyl cysteine. Nanomedicine, 2011, 6, 365-375.	3.3	147
14	Gene delivery to differentiated neurotypic cells with RGD and HIV Tat peptide functionalized polymeric nanoparticles. Biomaterials, 2006, 27, 5143-5150.	11.4	144
15	Enhanced Trapping of HIV-1 by Human Cervicovaginal Mucus Is Associated with Lactobacillus crispatus-Dominant Microbiota. MBio, 2015, 6, e01084-15.	4.1	141
16	Convolutional neural networks automate detection for tracking of submicron-scale particles in 2D and 3D. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9026-9031.	7.1	138
17	Altering Mucus Rheology to â€œSolidifyâ€•Human Mucus at the Nanoscale. PLoS ONE, 2009, 4, e4294.	2.5	120
18	Drug carrier nanoparticles that penetrate human chronic rhinosinusitis mucus. Biomaterials, 2011, 32, 6285-6290.	11.4	117

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19	The Cervicovaginal Microbiota-Host Interaction Modulates Chlamydia trachomatis Infection. MBio, 2019, 10, .	4.1	107
20	Nanoparticle penetration of human cervicovaginal mucus: The effect of polyvinyl alcohol. Journal of Controlled Release, 2014, 192, 202-208.	9.9	99
21	Mucoadhesive Nanoparticles May Disrupt the Protective Human Mucus Barrier by Altering Its Microstructure. PLoS ONE, 2011, 6, e21547.	2.5	90
22	Characterization of the intracellular dynamics of a non-degradative pathway accessed by polymer nanoparticles. Journal of Controlled Release, 2008, 125, 107-111.	9.9	63
23	Challenges and opportunities for antiviral monoclonal antibodies as COVID-19 therapy. Advanced Drug Delivery Reviews, 2021, 169, 100-117.	13.7	63
24	Overcoming anti-PEG antibody mediated accelerated blood clearance of PEGylated liposomes by pre-infusion with high molecular weight free PEG. Journal of Controlled Release, 2019, 311-312, 138-146.	9.9	53
25	Anti-PEG antibodies alter the mobility and biodistribution of densely PEGylated nanoparticles in mucus. Acta Biomaterialia, 2016, 43, 61-70.	8.3	50
26	Transient Antibody-Mucin Interactions Produce a Dynamic Molecular Shield against Viral Invasion. Biophysical Journal, 2014, 106, 2028-2036.	0.5	49
27	A minimal physiologically based pharmacokinetic model that predicts anti-PEG IgG-mediated clearance of PEGylated drugs in human and mouse. Journal of Controlled Release, 2018, 284, 171-178.	9.9	49
28	The Microstructure and Bulk Rheology of Human Cervicovaginal Mucus Are Remarkably Resistant to Changes in pH. Biomacromolecules, 2013, 14, 4429-4435.	5.4	48
29	The cervicovaginal mucus barrier to HIV-1 is diminished in bacterial vaginosis. PLoS Pathogens, 2020, 16, e1008236.	4.7	46
30	Influenza-binding antibodies immobilise influenza viruses in fresh human airwayÂmucus. European Respiratory Journal, 2017, 49, 1601709.	6.7	45
31	Non-degradative intracellular trafficking of highly compacted polymeric DNA nanoparticles. Journal of Controlled Release, 2012, 158, 102-107.	9.9	40
32	Structure of an anti-PEG antibody reveals an open ring that captures highly flexible PEG polymers. Communications Chemistry, 2020, 3, .	4.5	40
33	Accelerated Clearance of Ultrasound Contrast Agents Containing Polyethylene Glycol is Associated with the Generation of Anti-Polyethylene Glycol Antibodies. Ultrasound in Medicine and Biology, 2018, 44, 1266-1280.	1.5	39
34	Technological strategies to estimate and control diffusive passage times through the mucus barrier in mucosal drug delivery. Advanced Drug Delivery Reviews, 2018, 124, 64-81.	13.7	38
35	Anaphylaxis to Pfizer/BioNTech mRNA COVID-19 Vaccine in a Patient With Clinically Confirmed PEG Allergy. Frontiers in Allergy, 2021, 2, 715844.	2.8	38
36	Physician Awareness of Immune Responses to Polyethylene Glycolâ€Drug Conjugates. Clinical and Translational Science, 2018, 11, 162-165.	3.1	37

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37	Quantifying the intracellular transport of viral and nonviral gene vectors in primary neurons. Experimental Biology and Medicine, 2007, 232, 461-9.	2.4	37
38	Mucusâ€Penetrating Nanosuspensions for Enhanced Delivery of Poorly Soluble Drugs to Mucosal Surfaces. Advanced Healthcare Materials, 2016, 5, 2745-2750.	7.6	31
39	Using Computational Modeling To Optimize the Design of Antibodies That Trap Viruses in Mucus. ACS Infectious Diseases, 2016, 2, 82-92.	3.8	29
40	A blueprint for robust crosslinking of mobile species in biogels with weakly adhesive molecular anchors. Nature Communications, 2017, 8, 833.	12.8	29
41	Herpes simplex virus-binding IgG traps HSV in human cervicovaginal mucus across the menstrual cycle and diverse vaginal microbial composition. Mucosal Immunology, 2018, 11, 1477-1486.	6.0	29
42	Characterization of polydimethylsiloxane elastomer degradation via cross-linker hydrolysis. Polymer, 2005, 46, 4204-4211.	3.8	27
43	Modeling Neutralization Kinetics of HIV by Broadly Neutralizing Monoclonal Antibodies in Genital Secretions Coating the Cervicovaginal Mucosa. PLoS ONE, 2014, 9, e100598.	2.5	27
44	Challenges & opportunities for phage-based in situ microbiome engineering in the gut. Journal of Controlled Release, 2020, 326, 106-119.	9.9	27
45	ZMapp Reinforces the Airway Mucosal Barrier Against Ebola Virus. Journal of Infectious Diseases, 2018, 218, 901-910.	4.0	26
46	Engineering monoclonal antibody-based contraception and multipurpose prevention technologiesâ€. Biology of Reproduction, 2020, 103, 275-285.	2.7	23
47	LPS-binding IgG arrests actively motile Salmonella Typhimurium in gastrointestinal mucus. Mucosal Immunology, 2020, 13, 814-823.	6.0	22
48	Real-Time Multiple Particle Tracking of Gene Nanocarriers in Complex Biological Environments. , 2008, 434, 81-97.		22
49	Learning from past failures: Challenges with monoclonal antibody therapies for COVID-19. Journal of Controlled Release, 2021, 329, 87-95.	9.9	21
50	Modeling Barrier Properties of Intestinal Mucus Reinforced with IgG and Secretory IgA against Motile Bacteria. ACS Infectious Diseases, 2019, 5, 1570-1580.	3.8	20
51	Pre-treatment with high molecular weight free PEG effectively suppresses anti-PEG antibody induction by PEG-liposomes in mice. Journal of Controlled Release, 2021, 329, 774-781.	9.9	20
52	Bispecific binder redirected lentiviral vector enables in vivo engineering of CAR-T cells. , 2021, 9, e002737.		20
53	Addressing challenges of heterogeneous tumor treatment through bispecific protein-mediated pretargeted drug delivery. Journal of Controlled Release, 2015, 220, 715-726.	9.9	19
54	Minimizing biases associated with tracking analysis of submicron particles in heterogeneous biological fluids. Journal of Controlled Release, 2015, 220, 37-43.	9.9	18

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55	Cross-Reactivity of Select PEG-Binding Antibodies to Other Polymers Containing a C-C-O Backbone. ACS Biomaterials Science and Engineering, 2017, 3, 1605-1615.	5.2	17
56	Diffusion of Immunoglobulin G in Shed Vaginal Epithelial Cells and in Cell-Free Regions of Human Cervicovaginal Mucus. PLoS ONE, 2016, 11, e0158338.	2.5	17
57	Modeling insights into SARS-CoV-2 respiratory tract infections prior to immune protection. Biophysical Journal, 2022, 121, 1619-1631.	0.5	17
58	Pretargeting with bispecific fusion proteins facilitates delivery of nanoparticles to tumor cells with distinct surface antigens. Journal of Controlled Release, 2017, 255, 73-80.	9.9	15
59	Pretargeted delivery of PEG-coated drug carriers to breast tumors using multivalent, bispecific antibody against polyethylene glycol and HER2. Nanomedicine: Nanotechnology, Biology, and Medicine, 2019, 21, 102076.	3.3	15
60	Engineering Polymerâ€Binding Bispecific Antibodies for Enhanced Pretargeted Delivery of Nanoparticles to Mucusâ€Covered Epithelium. Angewandte Chemie - International Edition, 2019, 58, 5604-5608.	13.8	15
61	Engineering Well-Characterized PEG-Coated Nanoparticles for Elucidating Biological Barriers to Drug Delivery. Methods in Molecular Biology, 2017, 1530, 125-137.	0.9	14
62	Modeling of Virion Collisions in Cervicovaginal Mucus Reveals Limits on Agglutination as the Protective Mechanism of Secretory Immunoglobulin A. PLoS ONE, 2015, 10, e0131351.	2.5	13
63	Tuning Barrier Properties of Biological Hydrogels. ACS Applied Bio Materials, 2020, 3, 2875-2890.	4.6	13
64	Intraperitoneal delivery of paclitaxel by poly(ether-anhydride) microspheres effectively suppresses tumor growth in a murine metastatic ovarian cancer model. Drug Delivery and Translational Research, 2014, 4, 203-209.	5.8	12
65	Antibody-mediated trapping in biological hydrogels is governed by sugar-sugar hydrogen bonds. Acta Biomaterialia, 2020, 107, 91-101.	8.3	11
66	Immersive Research Experiences for High School Students Aimed at Promoting Diversity and Visibility in Pharmacy Education. American Journal of Pharmaceutical Education, 2020, 84, ajpe7589.	2.1	11
67	Nano-trapping CXCL13 reduces regulatory B cells in tumor microenvironment and inhibits tumor growth. Journal of Controlled Release, 2022, 343, 303-313.	9.9	11
68	The biophysical principles underpinning muco-trapping functions of antibodies. Human Vaccines and Immunotherapeutics, 2022, 18, 1-10.	3.3	9
69	Antibody-Mediated Immobilization of Virions in Mucus. Bulletin of Mathematical Biology, 2019, 81, 4069-4099.	1.9	8
70	High MW polyethylene glycol prolongs circulation of pegloticase in mice with anti-PEG antibodies. Journal of Controlled Release, 2021, 338, 804-812.	9.9	8
71	The Young Innovators Program at the Eshelman Institute for Innovation: a case study examining the role of a professional pharmacy school in enhancing STEM pursuits among secondary school students. International Journal of STEM Education, 2017, 4, 17.	5.0	7
72	Hexavalent sperm-binding IgG antibody released from vaginal film for development of potent on-demand nonhormonal female contraception. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	7

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73	Multivalent interactions between streptavidin-based pretargeting fusion proteins and cell receptors impede efficient internalization of biotinylated nanoparticles. Acta Biomaterialia, 2017, 63, 181-189.	8.3	5
74	Robust antigen-specific tuning of the nanoscale barrier properties of biogels using matrix-associating IgG and IgM antibodies. Acta Biomaterialia, 2019, 89, 95-103.	8.3	5
75	A PBPK model recapitulates early kinetics of anti-PEG antibody-mediated clearance of PEG-liposomes. Journal of Controlled Release, 2022, 343, 518-527.	9.9	5
76	Engineering tetravalent IgGs with enhanced agglutination potencies for trapping vigorously motile sperm in mucin matrix. Acta Biomaterialia, 2020, 117, 226-234.	8.3	4
77	Efficient and Highly Specific Gene Transfer Using Mutated Lentiviral Vectors Redirected with Bispecific Antibodies. MBio, 2020, 11, .	4.1	4
78	Engineering sperm-binding IgG antibodies for the development of an effective nonhormonal female contraception. Science Translational Medicine, 2021, 13, .	12.4	4
79	Influence of Vaginal Microbiota on the Diffusional Barrier Properties of Cervicovaginal Mucus. AIDS Research and Human Retroviruses, 2014, 30, A234-A234.	1.1	3
80	Engineering Polymerâ€Binding Bispecific Antibodies for Enhanced Pretargeted Delivery of Nanoparticles to Mucusâ€Covered Epithelium. Angewandte Chemie, 2019, 131, 5660-5664.	2.0	3
81	Limited processivity of single motors improves overall transport flux of self-assembled motor-cargo complexes. Physical Review E, 2019, 100, 022408.	2.1	2
82	Experimental Data and PBPK Modeling Quantify Antibody Interference in PEGylated Drug Carrier Delivery. Bulletin of Mathematical Biology, 2021, 83, 123.	1.9	2
83	Stereolithography-Based 3D Printed â€œPillar Platesâ€•that Minimizes Fluid Transfers During Enzyme Linked Immunosorbent Assays. Annals of Biomedical Engineering, 2017, 45, 982-989.	2.5	1
84	Cancer Therapy: Vaginal Delivery of Paclitaxel via Nanoparticles with Nonâ€Mucoadhesive Surfaces Suppresses Cervical Tumor Growth (Adv. Healthcare Mater. 7/2014). Advanced Healthcare Materials, 2014, 3, 1120-1120.	7.6	0
85	Notice of Removal: Accelerated clearance of ultrasound contrast agents containing polyethylene glycol (PEG) is associated with a PEG-specific immune response. , 2017, , .		0