

Umut A Gurkan

List of Publications by Year in descending order

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117
papers

5,382
citations

81900

39
h-index

88630

70
g-index

126
all docs

126
docs citations

126
times ranked

7446
citing authors

#	ARTICLE	IF	CITATIONS
1	Extreme sensitivity biosensing platform based on hyperbolic metamaterials. <i>Nature Materials</i> , 2016, 15, 621-627.	27.5	609
2	The Mechanical Environment of Bone Marrow: A Review. <i>Annals of Biomedical Engineering</i> , 2008, 36, 1978-1991.	2.5	254
3	An electrochemical fabrication process for the assembly of anisotropically oriented collagen bundles. <i>Biomaterials</i> , 2008, 29, 3278-3288.	11.4	224
4	Three-Dimensional Magnetic Assembly of Microscale Hydrogels. <i>Advanced Materials</i> , 2011, 23, 4254-4260.	21.0	213
5	Flow induces epithelial-mesenchymal transition, cellular heterogeneity and biomarker modulation in 3D ovarian cancer nodules. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, E1974-83.	7.1	184
6	Nanoplasmonic Quantitative Detection of Intact Viruses from Unprocessed Whole Blood. <i>ACS Nano</i> , 2013, 7, 4733-4745.	14.6	158
7	Engineering Anisotropic Biomimetic Fibrocartilage Microenvironment by Bioprinting Mesenchymal Stem Cells in Nanoliter Gel Droplets. <i>Molecular Pharmaceutics</i> , 2014, 11, 2151-2159.	4.6	155
8	Paper and Flexible Substrates as Materials for Biosensing Platforms to Detect Multiple Biotargets. <i>Scientific Reports</i> , 2015, 5, 8719.	3.3	148
9	The assembly of cell-encapsulating microscale hydrogels using acoustic waves. <i>Biomaterials</i> , 2011, 32, 7847-7855.	11.4	123
10	Factor XII and uPAR upregulate neutrophil functions to influence wound healing. <i>Journal of Clinical Investigation</i> , 2018, 128, 944-959.	8.2	103
11	Manipulating biological agents and cells in micro-scale volumes for applications in medicine. <i>Chemical Society Reviews</i> , 2013, 42, 5788.	38.1	100
12	Heterogeneous Red Blood Cell Adhesion and Deformability in Sickle Cell Disease. <i>Scientific Reports</i> , 2014, 4, 7173.	3.3	99
13	Exhaustion of Racing Sperm in Nature-Mimicking Microfluidic Channels During Sorting. <i>Small</i> , 2013, 9, 3374-3384.	10.0	96
14	Microengineering methods for cell-based microarrays and high-throughput drug-screening applications. <i>Biofabrication</i> , 2011, 3, 034101.	7.1	89
15	Embryonic stem cell bioprinting for uniform and controlled size embryoid body formation. <i>Biomicrofluidics</i> , 2011, 5, 022207.	2.4	85
16	Micro-a-fluidics ELISA for Rapid CD4 Cell Count at the Point-of-Care. <i>Scientific Reports</i> , 2014, 4, 3796.	3.3	85
17	Miniaturized lensless imaging systems for cell and microorganism visualization in point-of-care testing. <i>Biotechnology Journal</i> , 2011, 6, 138-149.	3.5	84
18	Emerging Technologies for Assembly of Microscale Hydrogels. <i>Advanced Healthcare Materials</i> , 2012, 1, 149-158.	7.6	83

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19	Use of commercial off-the-shelf digital cameras for scientific data acquisition and scene-specific color calibration. <i>Journal of the Optical Society of America A: Optics and Image Science, and Vision</i> , 2014, 31, 312.	1.5	82
20	Lensless imaging for simultaneous microfluidic sperm monitoring and sorting. <i>Lab on A Chip</i> , 2011, 11, 2535.	6.0	80
21	Paramagnetic Levitational Assembly of Hydrogels. <i>Advanced Materials</i> , 2013, 25, 1137-1143.	21.0	77
22	A multiband perfect absorber based on hyperbolic metamaterials. <i>Scientific Reports</i> , 2016, 6, 26272.	3.3	77
23	Enumeration of CD4+ T-Cells Using a Portable Microchip Count Platform in Tanzanian HIV-Infected Patients. <i>PLoS ONE</i> , 2011, 6, e21409.	2.5	74
24	Release of Magnetic Nanoparticles from Cell-Encapsulating Biodegradable Nanobiomaterials. <i>ACS Nano</i> , 2012, 6, 6640-6649.	14.6	74
25	Efficient on-chip isolation of HIV subtypes. <i>Lab on A Chip</i> , 2012, 12, 1508.	6.0	73
26	Portable microfluidic chip for detection of <i>Escherichia coli</i> in produce and blood. <i>International Journal of Nanomedicine</i> , 2012, 7, 2591.	6.7	72
27	Enhancing the Angular Sensitivity of Plasmonic Sensors Using Hyperbolic Metamaterials. <i>Advanced Optical Materials</i> , 2016, 4, 1767-1772.	7.3	69
28	Simple Precision Creation of Digitally Specified, Spatially Heterogeneous, Engineered Tissue Architectures. <i>Advanced Materials</i> , 2013, 25, 1192-1198.	21.0	67
29	Sickle cell disease biochip: a functional red blood cell adhesion assay for monitoring sickle cell disease. <i>Translational Research</i> , 2016, 173, 74-91.e8.	5.0	66
30	Organismal engineering: Toward a robotic taxonomic key for devices using organic materials. <i>Science Robotics</i> , 2017, 2, .	17.6	61
31	Controlled viable release of selectively captured label-free cells in microchannels. <i>Lab on A Chip</i> , 2011, 11, 3979.	6.0	55
32	Dynamic deformability of sickle red blood cells in microphysiological flow. <i>Technology</i> , 2016, 04, 71-79.	1.4	54
33	Emerging technologies in medical applications of minimum volume vitrification. <i>Nanomedicine</i> , 2011, 6, 1115-1129.	3.3	51
34	Emerging point-of-care technologies for sickle cell disease screening and monitoring. <i>Expert Review of Medical Devices</i> , 2016, 13, 1073-1093.	2.8	49
35	Automated and Adaptable Quantification of Cellular Alignment from Microscopic Images for Tissue Engineering Applications. <i>Tissue Engineering - Part C: Methods</i> , 2011, 17, 641-649.	2.1	48
36	Smart Interface Materials Integrated with Microfluidics for On-Demand Local Capture and Release of Cells. <i>Advanced Healthcare Materials</i> , 2012, 1, 661-668.	7.6	48

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37	Inhibition of Band 3 tyrosine phosphorylation: a new mechanism for treatment of sickle cell disease. <i>British Journal of Haematology</i> , 2020, 190, 599-609.	2.5	46
38	Microfluidic assessment of red blood cell mediated microvascular occlusion. <i>Lab on A Chip</i> , 2020, 20, 2086-2099.	6.0	46
39	Statistical Modeling of Single Target Cell Encapsulation. <i>PLoS ONE</i> , 2011, 6, e21580.	2.5	44
40	Whole blood viscosity and red blood cell adhesion: Potential biomarkers for targeted and curative therapies in sickle cell disease. <i>American Journal of Hematology</i> , 2020, 95, 1246-1256.	4.1	42
41	Hypoxia-enhanced adhesion of red blood cells in microscale flow. <i>Microcirculation</i> , 2017, 24, e12374.	1.8	40
42	Bio-Inspired Cryo-Ink Preserves Red Blood Cell Phenotype and Function During Nanoliter Vitrification. <i>Advanced Materials</i> , 2014, 26, 5815-5822.	21.0	39
43	Hyperbolic metamaterials-based plasmonic biosensor for fluid biopsy with single molecule sensitivity. <i>EPJ Applied Metamaterials</i> , 2017, 4, 1.	1.5	39
44	Paper-based microchip electrophoresis for point-of-care hemoglobin testing. <i>Analyst, The</i> , 2020, 145, 2525-2542.	3.5	39
45	Comparison of morphology, orientation, and migration of tendon derived fibroblasts and bone marrow stromal cells on electrochemically aligned collagen constructs. <i>Journal of Biomedical Materials Research - Part A</i> , 2010, 94A, 1070-1079.	4.0	37
46	Transport of a soft cargo on a nanoscale ratchet. <i>Applied Physics Letters</i> , 2011, 99, 063703.	3.3	37
47	ClotChip: A Microfluidic Dielectric Sensor for Point-of-Care Assessment of Hemostasis. <i>IEEE Transactions on Biomedical Circuits and Systems</i> , 2017, 11, 1459-1469.	4.0	36
48	Red blood cell adhesion to heme-activated endothelial cells reflects clinical phenotype in sickle cell disease. <i>American Journal of Hematology</i> , 2018, 93, 1050-1060.	4.1	36
49	Leukocyte adhesion to P-selectin and the inhibitory role of Crizanlizumab in sickle cell disease: A standardized microfluidic assessment. <i>Blood Cells, Molecules, and Diseases</i> , 2020, 83, 102424.	1.4	35
50	Micro and Nano-Scale Technologies for Cell Mechanics. <i>Nanobiomedicine</i> , 2014, 1, 5.	5.7	33
51	Three-Dimensional Printing Based Hybrid Manufacturing of Microfluidic Devices. <i>Journal of Nanotechnology in Engineering and Medicine</i> , 2015, 6, .	0.8	33
52	Shear dependent red blood cell adhesion in microscale flow. <i>Integrative Biology (United Kingdom)</i> , 2018, 10, 194-206.	1.3	30
53	Red blood cell adhesion to ICAM-1 is mediated by fibrinogen and is associated with right-to-left shunts in sickle cell disease. <i>Blood Advances</i> , 2020, 4, 3688-3698.	5.2	28
54	The Sequential Production Profiles of Growth Factors and their Relations to Bone Volume in Ossifying Bone Marrow Explants. <i>Tissue Engineering - Part A</i> , 2010, 16, 2295-2306.	3.1	26

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55	Nanoliter droplet vitrification for oocyte cryopreservation. <i>Nanomedicine</i> , 2012, 7, 553-564.	3.3	26
56	Hydrogen Sensing Using Thin-Film Perfect Light Absorber. <i>ACS Photonics</i> , 2019, 6, 1889-1894.	6.6	25
57	Microfluidic electrical impedance assessment of red blood cell-mediated microvascular occlusion. <i>Lab on A Chip</i> , 2021, 21, 1036-1048.	6.0	25
58	Micro- and nanodevices integrated with biomolecular probes. <i>Biotechnology Advances</i> , 2015, 33, 1727-1743.	11.7	24
59	Anisotropically Stiff 3D Micropillar Niche Induces Extraordinary Cell Alignment and Elongation. <i>Advanced Healthcare Materials</i> , 2016, 5, 1884-1892.	7.6	23
60	Living Bacterial Sacrificial Porogens to Engineer Decellularized Porous Scaffolds. <i>PLoS ONE</i> , 2011, 6, e19344.	2.5	23
61	Emerging point-of-care technologies for anemia detection. <i>Lab on A Chip</i> , 2021, 21, 1843-1865.	6.0	22
62	3-D Microwell Array System for Culturing Virus Infected Tumor Cells. <i>Scientific Reports</i> , 2016, 6, 39144.	3.3	21
63	Standardized microfluidic assessment of red blood cell-mediated microcapillary occlusion: Association with clinical phenotype and hydroxyurea responsiveness in sickle cell disease. <i>Microcirculation</i> , 2021, 28, e12662.	1.8	21
64	Clinical Testing of Hemechip in Nigeria for Point-of-Care Screening of Sickle Cell Disease. <i>Blood</i> , 2018, 132, 1095-1095.	1.4	20
65	A Scaffold-Free Multicellular Three-Dimensional In Vitro Model of Osteogenesis. <i>Calcified Tissue International</i> , 2011, 88, 388-401.	3.1	18
66	Assessment of whole blood coagulation with a microfluidic dielectric sensor. <i>Journal of Thrombosis and Haemostasis</i> , 2018, 16, 2050-2056.	3.8	18
67	Point-of-care microchip electrophoresis for integrated anemia and hemoglobin variant testing. <i>Lab on A Chip</i> , 2021, 21, 3863-3875.	6.0	18
68	Prediction and control of number of cells in microdroplets by stochastic modeling. <i>Lab on A Chip</i> , 2012, 12, 4884.	6.0	17
69	Monitoring time course of human whole blood coagulation using a microfluidic dielectric sensor with a 3D capacitive structure. , 2015, 2015, 5904-7.		17
70	Functional Maintenance of Differentiated Embryoid Bodies in Microfluidic Systems: A Platform for Personalized Medicine. <i>Stem Cells Translational Medicine</i> , 2015, 4, 261-268.	3.3	16
71	Priapism, hemoglobin desaturation, and red blood cell adhesion in men with sickle cell anemia. <i>Blood Cells, Molecules, and Diseases</i> , 2019, 79, 102350.	1.4	16
72	Quantifying the influences of radiation therapy on deformability of human red blood cells by dual-beam optical tweezers. <i>RSC Advances</i> , 2021, 11, 15519-15527.	3.6	16

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73	Point-of-Care Screening for Sickle Cell Disease By a Mobile Micro-Electrophoresis Platform. <i>Blood</i> , 2015, 126, 3379-3379.	1.4	16
74	Size and density measurements of single sickle red blood cells using microfluidic magnetic levitation. <i>Lab on A Chip</i> , 2022, 22, 683-696.	6.0	16
75	Ossifying Bone Marrow Explant Culture as a Three-Dimensional Mechanoresponsive <i>In Vitro</i> Model of Osteogenesis. <i>Tissue Engineering - Part A</i> , 2011, 17, 417-428.	3.1	15
76	Biophysical and rheological biomarkers of red blood cell physiology and pathophysiology. <i>Current Opinion in Hematology</i> , 2021, 28, 138-149.	2.5	15
77	Integrating deep learning with microfluidics for biophysical classification of sickle red blood cells adhered to laminin. <i>PLoS Computational Biology</i> , 2021, 17, e1008946.	3.2	14
78	Blood Flow Velocimetry in a Microchannel During Coagulation Using Particle Image Velocimetry and Wavelet-Based Optical Flow Velocimetry. <i>Journal of Biomechanical Engineering</i> , 2021, 143, .	1.3	13
79	A monolithic Lagrangian meshfree scheme for Fluid-Structure Interaction problems within the OTM framework. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2018, 337, 198-219.	6.6	12
80	Mercury leads to abnormal red blood cell adhesion to laminin mediated by membrane sulfatides. <i>Biochimica Et Biophysica Acta - Biomembranes</i> , 2019, 1861, 1162-1171.	2.6	12
81	3D-Printed Biohybrid Robots Powered by Neuromuscular Tissue Circuits from <i>Aplysia californica</i> . <i>Lecture Notes in Computer Science</i> , 2017, , 475-486.	1.3	12
82	Biomimetic post-capillary venule expansions for leukocyte adhesion studies. <i>Scientific Reports</i> , 2018, 8, 9328.	3.3	11
83	Hydrogen gas sensing using aluminum doped ZnO metasurfaces. <i>Nanoscale Advances</i> , 2020, 2, 3452-3459.	4.6	11
84	State Estimator Design for Multicomponent Batch Distillation Columns. <i>Chemical Engineering Research and Design</i> , 2005, 83, 433-444.	5.6	8
85	An RF/microwave microfluidic sensor for miniaturized dielectric spectroscopy based on sensor transmission characteristics. , 2015, , .		7
86	Integrated Anemia Detection and Hemoglobin Variant Identification Using Point-of-Care Microchip Electrophoresis. <i>Blood</i> , 2019, 134, 378-378.	1.4	7
87	Dynamic pH and Thermal Analysis of Paper-Based Microchip Electrophoresis. <i>Micromachines</i> , 2021, 12, 1433.	2.9	7
88	Evaluation of Epithelial Chimerism After Bone Marrow Mesenchymal Stromal Cell Infusion in Intestinal Transplant Patients. <i>Transplantation Proceedings</i> , 2014, 46, 2125-2132.	0.6	6
89	Microfluidic processing of synovial fluid for cytological analysis. <i>Biomedical Microdevices</i> , 2017, 19, 20.	2.8	6
90	A low-cost, mass-producible point-of-care platform for diagnosing hemoglobin disorders. , 2017, , .		6

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91	Integrated Point-of-Care Device for Anemia Detection and Hemoglobin Variant Identification. , 2019, , .		6
92	Towards access for all: 1st Working Group Report for the Global Gene Therapy Initiative (GGTI). Gene Therapy, 2023, 30, 216-221.	4.5	6
93	Ultrathin-film optical coating for angle-independent remote hydrogen sensing. Measurement Science and Technology, 2020, 31, 115201.	2.6	6
94	Immune and Inflammatory Pathways are Involved in Inherent Bone Marrow Ossification. Clinical Orthopaedics and Related Research, 2012, 470, 2528-2540.	1.5	5
95	International Multi-Site Clinical Validation of Point-of-Care Microchip Electrophoresis Test for Hemoglobin Variant Identification. Blood, 2019, 134, 3373-3373.	1.4	5
96	SCD-Biochip: A Functional Assay for Red Cell Adhesion in Sickle Cell Disease. Blood, 2014, 124, 4053-4053.	1.4	5
97	An RF/microwave microfluidic sensor based on a 3D capacitive structure with a floating electrode for miniaturized dielectric spectroscopy. , 2014, , .		4
98	A PMMA microfluidic dielectric sensor for blood coagulation monitoring at the point-of-care. , 2016, 2016, 291-294.		4
99	Heterogeneous Hypoxia-Mediated Neutrophil and Red Blood Cell Adhesion to E-Selectin in Microscale Flow. Blood, 2018, 132, 3671-3671.	1.4	4
100	A retrospective case study of successful translational research: Gazelle Hb variant point-of-care diagnostic device for sickle cell disease. Journal of Clinical and Translational Science, 2021, 5, e207.	0.6	4
101	Computer Vision and Deep Learning Assisted Microchip Electrophoresis for Integrated Anemia and Sickle Cell Disease Screening. Blood, 2020, 136, 46-47.	1.4	3
102	Advancing Healthcare Outcomes for Sickle Cell Disease in Nigeria Using Mobile Health Tools. Blood, 2019, 134, 2173-2173.	1.4	3
103	<sc>Antithrombinâ€œ</sc> mitigates thrombinâ€œmediated endothelial cell contraction and sickle red blood cell adhesion in microscale flow. British Journal of Haematology, 2022, 198, 893-902.	2.5	3
104	Assessment of Red Blood Cell-Mediated Microvascular Occlusion in Sickle Cell Disease By a Novel Electrical Impedance-Based Microfluidic Device. Blood, 2020, 136, 10-10.	1.4	2
105	Hypoxia Responsiveness in RBCs from Patients with Sickle Cell Disease Associates with a More Severe Clinical Phenotype. Blood, 2016, 128, 3643-3643.	1.4	2
106	Adhesion of Sickle RBCs to Heme-Activated Endothelial Cells Correlates with Patient Clinical Phenotypes. Blood, 2017, 130, 959-959.	1.4	2
107	An Implantable Magnetoelastic Sensor System for Wireless Physiological Sensing of Viscosity. , 2007, , .		1
108	Contribution of Red Blood Cell Derived Extracellular Vesicles to Sickle Red Blood Cell Adhesion Discerned Using an Endothelialized Microfluidic Assay. Blood, 2020, 136, 13-14.	1.4	1

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109	A Miniaturized Microfluidic Dielectric Sensor for Point-of-Care Assessment of Blood Coagulation. Blood, 2016, 128, 3754-3754.	1.4	1
110	Hypoxia Enhanced Red Cell Adhesion in Vitro May Identify Patients at Risk for Vasculopathy. Blood, 2018, 132, 3672-3672.	1.4	1
111	Point-of-Care Microchip Electrophoresis Test for Glycosylated Hemoglobin. , 2022, , .		1
112	Editorial: Scaffold-free cell-based approaches in biomedicine and biotechnology. Biotechnology Journal, 2011, 6, 1426-1427.	3.5	0
113	Monitoring blood coagulation using a surface-functionalized microfluidic dielectric sensor. , 2017, , .		0
114	Live Demonstration: HemeChip - A Portable Microchip Electrophoresis Technology for Point-of-Care Sickle Cell Disease Screening. , 2018, , .		0
115	Poloxamer 188 vs Placebo for Painful Vaso-occlusive Episodes in Children and Adults With Sickle Cell Disease. JAMA - Journal of the American Medical Association, 2021, 326, 975.	7.4	0
116	Mechanical Stimulation Enhances the Production of BMP-2 in Ossifying Rat Bone Marrow Organ Cultures. , 2009, , .		0
117	Red Blood Cell Adhesion Is Increased in the Young Adult Population with Sickle Cell Disease. Blood, 2018, 132, 2387-2387.	1.4	0