# Elliot L Botvinick

List of Publications by Year
in descending order



| 67 | 3,409 | 218677 | 144013 |
|---|---|---|---|
| papers | citations | 26 h-index | 57 g-index |

| 67 | 67 | 67 | 5727 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Visualizing the mechanical activation of Src. Nature, 2005, 434, 1040-1045. | 27.8 | 632 |
| 2 | Cell Cycle Dependence of DNA-dependent Protein Kinase Phosphorylation in Response to DNA Double Strand Breaks. Journal of Biological Chemistry, 2005, 280, 14709-14715. | 3.4 | 291 |
| 3 | MT1-MMP-Dependent Control of Skeletal Stem Cell Commitment via a Î²1-Integrin/YAP/TAZ Signaling Axis. Developmental Cell, 2013, 25, 402-416. | 7.0 | 219 |
| 4 | Notch Ligand Endocytosis Generates Mechanical Pulling Force Dependent on Dynamin, Epsins, and Actin. Developmental Cell, 2012, 22, 1299-1312. | 7.0 | 208 |
| 5 | Live Cells Exert 3-Dimensional Traction Forces on Their Substrata. Cellular and Molecular Bioengineering, 2009, 2, 425-436. | 2.1 | 140 |
| 6 | Differential regulation of macrophage inflammatory activation by fibrin and fibrinogen. Acta Biomaterialia, 2017, 47, 14-24. | 8.3 | 140 |
| 7 | Combination scaffolds of salmon fibrin, hyaluronic acid, and laminin for human neural stem cell and vascular tissue engineering. Acta Biomaterialia, 2016, 43, 122-138. | 8.3 | 125 |
| 8 | Shrinkâ€Film Configurable Multiscale Wrinkles for Functional Alignment of Human Embryonic Stem Cells and their Cardiac Derivatives. Advanced Materials, 2011, 23, 5785-5791. | 21.0 | 116 |
| 9 | Comparison of glycolysis and oxidative phosphorylation as energy sources for mammalian sperm motility, using the combination of fluorescence imaging, laser tweezers, and realâ€time automated tracking and trapping. Journal of Cellular Physiology, 2008, 217, 745-751. | 4.1 | 112 |
| 10 | Three-Dimensional Adult Cardiac Extracellular Matrix Promotes Maturation of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes. Tissue Engineering - Part A, 2016, 22, 1016-1025. | 3.1 | 109 |
| 11 | Distinct mechanisms regulating mechanical force-induced Ca2+ signals at the plasma membrane and the ER in human MSCs. ELife, 2015, 4, e04876. | 6.0 | 90 |
| 12 | Recapitulating the human tumor microenvironment: Colon tumor-derived extracellular matrix promotes angiogenesis and tumor cell growth. Biomaterials, 2017, 116, 118-129. | 11.4 | 88 |
| 13 | Concentration Independent Modulation of Local Micromechanics in a Fibrin Gel. PLoS ONE, 2011, 6, e20201. | 2.5 | 76 |
| 14 | Optical Tweezers Studies on Notch: Single-Molecule Interaction Strength Is Independent of Ligand Endocytosis. Developmental Cell, 2012, 22, 1313-1320. | 7.0 | 71 |
| 15 | The use of optical tweezers to study sperm competition and motility in primates. Journal of the Royal Society Interface, 2008, 5, 297-302. | 3.4 | 63 |
| 16 | Matrix crosslinking enhances macrophage adhesion, migration, and inflammatory activation. APL Bioengineering, 2019, 3, 016103. | 6.2 | 58 |
| 17 | Internet-based robotic laser scissors and tweezers microscopy. Microscopy Research and Technique, 2005, 68, 65-74. | 2.2 | 57 |
| 18 | Independent polarisation control of multiple optical traps. Optics Express, 2008, 16, 15897. | 3.4 | 56 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | Sprouting angiogenesis induces significant mechanical heterogeneities and ECM stiffening across length scales in fibrin hydrogels. Biomaterials, 2018, 162, 99-108. | 11.4 | 49 |
| 20 | Spatial distributions of pericellular stiffness in natural extracellular matrices are dependent on cell-mediated proteolysis and contractility. Acta Biomaterialia, 2017, 57, 304-312. | 8.3 | 47 |
| 21 | Quantification of local matrix deformations and mechanical properties during capillary morphogenesis in 3D. Integrative Biology (United Kingdom), 2012, 4, 431. | 1.3 | 41 |
| 22 | Characterizing the Collagen Fiber Orientation in Pericardial Leaflets Under Mechanical Loading Conditions. Annals of Biomedical Engineering, 2013, 41, 547-561. | 2.5 | 38 |
| 23 | High-throughput optical screening of cellular mechanotransduction. Nature Photonics, 2014, 8, 710-715. | 31.4 | 36 |
| 24 | Real-time automated tracking and trapping system for sperm. Microscopy Research and Technique, 2006, 69, 894-902. | 2.2 | 33 |
| 25 | Composite Bijel-Templated Hydrogels for Cell Delivery. ACS Biomaterials Science and Engineering, 2018, 4, 587-594. | 5.2 | 33 |
| 26 | An Intact Centrosome Is Required for the Maintenance of Polarization during Directional Cell Migration. PLoS ONE, 2010, 5, e15462. | 2.5 | 30 |
| 27 | Cell contact guidance via sensing anisotropy of network mechanical resistance. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 7.1 | 28 |
| 28 | Molecular interference of fibrin's divalent polymerization mechanism enables modulation of multiscale material properties. Biomaterials, 2015, 49, 27-36. | 11.4 | 27 |
| 29 | Bijel-templated implantable biomaterials for enhancing tissue integration and vascularization. Acta Biomaterialia, 2019, 94, 173-182. | 8.3 | 27 |
| 30 | An automatic system to study sperm motility and energetics. Biomedical Microdevices, 2008, 10, 573-583. | 2.8 | 24 |
| 31 | Visualization of Breast Cancer Metabolism Using Multimodal Nonlinear Optical Microscopy of Cellular Lipids and Redox State. Cancer Research, 2018, 78, 2503-2512. | 0.9 | 24 |
| 32 | Selective stiffening of fibrin hydrogels with micron resolution via photocrosslinking. Acta Biomaterialia, 2019, 87, 88-96. | 8.3 | 22 |
| 33 | High-throughput sorting and analysis of human sperm with a ring-shaped laser trap. Biomedical Microdevices, 2007, 9, 361-369. | 2.8 | 21 |
| 34 | Use of laser tweezers to analyze sperm motility and mitochondrial membrane potential. Journal of Biomedical Optics, 2008, 13, 014002. | 2.6 | 21 |
| 35 | Size tunable three-dimensional annular laser trap based on axicons. Optics Letters, 2006, 31, 3375. | 3.3 | 19 |
| 36 | Laserâ€Based Measurements in Cell Biology. Methods in Cell Biology, 2007, 82, 81-109. | 1.1 | 17 |

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| 37 | Lens-free computational imaging of capillary morphogenesis within three-dimensional substrates. Journal of Biomedical Optics, 2012, 17, 126018. | 2.6 | 17 |
| 38 | Microstructural characteristics of bijel-templated porous materials. Materialia, 2019, 7, 100393. | 2.7 | 17 |
| 39 | Local small airway epithelial injury induces global smooth muscle contraction and airway constriction. Journal of Applied Physiology, 2012, 112, 627-637. | 2.5 | 16 |
| 40 | Method measuring oxygen tension and transport within subcutaneous devices. Journal of Biomedical Optics, 2014, 19, 087006. | 2.6 | 14 |
| 41 | A pilot clinical trial of a nearâ€infrared laser vaccine adjuvant: safety, tolerability, and cutaneous immune cell trafficking. FASEB Journal, 2019, 33, 3074-3081. | 0.5 | 12 |
| 42 | Laser cavitation rheology for measurement of elastic moduli and failure strain within hydrogels. Scientific Reports, 2020, 10, 13144. | 3.3 | 12 |
| 43 | Structural Characteristics and Diffusion Coefficient of Alginate Hydrogels Used for Cell Based Drug Delivery. MRS Advances, 2018, 3, 2399-2408. | 0.9 | 11 |
| 44 | Transcutaneous Flexible Sensor forIn VivoPhotonic Detection of pH and Lactate. ACS Sensors, 2022, 7, 441-452. | 7.8 | 10 |
| 45 | Patterned photocrosslinking to establish stiffness anisotropies in fibrous 3D hydrogels. Acta Biomaterialia, 2022, 141, 39-47. | 8.3 | 10 |
| 46 | Automated Motile Cell Capture and Analysis with Optical Traps. Methods in Cell Biology, 2007, 82, 601-627. | 1.1 | 9 |
| 47 | Laser Tweezers in the Study of Mechanobiology in Live Cells. Methods in Cell Biology, 2007, 82, 497-523. | 1.1 | 8 |
| 48 | Novel insights from 3D models: the pivotal role of physical symmetry in epithelial organization. Scientific Reports, 2015, 5, 15153. | 3.3 | 8 |
| 49 | High-Throughput Screening of Encapsulated Islets Using Wide-Field Lens-Free On-Chip Imaging. ACS Photonics, 2018, 5, 2081-2086. | 6.6 | 8 |
| 50 | Dermal fibroblasts and triple-negative mammary epithelial cancer cells differentially stiffen their local matrix. APL Bioengineering, 2020, 4, 046105. | 6.2 | 8 |
| 51 | Adenosine A<sub>1</sub> and Prostaglandin E Receptor 3 Receptors Mediate Global Airway Contraction after Local Epithelial Injury. American Journal of Respiratory Cell and Molecular Biology, 2013, 48, 299-305. | 2.9 | 7 |
| 52 | Extending vaterite microviscometry to ex vivo blood vessels by serial calibration. Biomedical Optics Express, 2012, 3, 37. | 2.9 | 6 |
| 53 | Evolution of Multivalent Nanoparticle Adhesion via Specific Molecular Interactions. Langmuir, 2016, 32, 13124-13136. | 3.5 | 6 |
| 54 | Vascularization and innervation of slits within polydimethylsiloxane sheets in the subcutaneous space of athymic nude mice. Journal of Tissue Engineering, 2017, 8, 204173141769164. | 5.5 | 6 |

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|---|---|---|---|
| 55 | Clinical evaluation of a novel subcutaneous lactate monitor. Journal of Clinical Monitoring and Computing, 2021, , 1. | 1.6 | 6 |
| 56 | Topological defects produce kinks in biopolymer filament bundles. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 7.1 | 6 |
| 57 | Single-shot interferometric measurement of cavitation bubble dynamics. Optics Letters, 2021, 46, 1409. | 3.3 | 5 |
| 58 | Cell mediated remodeling of stiffness matched collagen and fibrin scaffolds. Scientific Reports, 2022, 12, . | 3.3 | 5 |
| 59 | Actively Driven Fluctuations in a Fibrin Network. Frontiers in Physics, 2021, 8, . | 2.1 | 4 |
| 60 | Photostable and Proteolysis-Resistant FÃ¶rster Resonance Energy Transfer-Based Calcium Biosensor. Analytical Chemistry, 2020, 92, 7683-7689. | 6.5 | 3 |
| 61 | An interdisciplinary systems approach to study sperm physiology and evolution. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2011, 3, 36-47. | 6.6 | 2 |
| 62 | Reply to 'Mechanism for microtsunami-induced intercellular mechanosignalling'. Nature Photonics, 2015, 9, 624-625. | 31.4 | 2 |
| 63 | Non-Invasive Monitoring of Oxygen Tension and Oxygen Transport Inside Subcutaneous Devices After H<sub>2</sub>S Treatment. Cell Transplantation, 2020, 29, 096368971989393. | 2.5 | 2 |
| 64 | Laser manipulation of cells and tissue. , 2008, , . | | 1 |
| 65 | A bench-top model of middle ear effusion diagnosed with optical tympanometry. International Journal of Pediatric Otorhinolaryngology, 2020, 134, 110054. | 1.0 | 0 |
| 66 | Oxygen Monitor to Study Vascularization of Medical Devices. MRS Advances, 2020, 5, 991-1000. | 0.9 | 0 |
| 67 | Towards the Development of a Realâ€time Insulin Biosensor. FASEB Journal, 2018, 32, 657.9. | 0.5 | 0 |