

## Research Publications Featuring the MA900 Multi-Application Cell Sorter

The MA900 Multi-Application Cell Sorter has been cited in over 600 peer reviewed publications spanning the areas of immunology, stem cell biology, oncology, neuroscience, and others. Explore our featured publications at [www.sonybiotechnology.com/ma900](http://www.sonybiotechnology.com/ma900).

Research Area	Featured Publications	Experiment
<b>Immunology</b>	<p>Breeuwsma M, Heesters BA. Protocol for the isolation and purification of human follicular dendritic cells for functional assays. <i>STAR Protoc.</i> 2023;4:102404. <a href="#">PubMed</a></p> <p>Viola MF, Chavero-Pierres M, Modave E, et al. Dedicated macrophages organize and maintain the enteric nervous system. <i>Nature.</i> 2023; 618:818-826. <a href="#">PubMed</a></p> <p>Rege SV, Teichert A, Masumi J, et al. CCR3 plays a role in murine age-related cognitive changes and T-cell infiltration into the brain. <i>Commun Biol.</i> 2023;6:292. <a href="#">PubMed</a></p>	<p>Immune cell subsets such as T, <math>\gamma/\delta</math>T, B, and NK cells and monocytes can be sorted at a high throughput of 15,000 events per second using the 70-<math>\mu</math>m chip to obtain &gt;99% purity and &gt;90% efficiency.</p> <p>For sorting immune cell types such as dendritic cells and macrophages, the 100-<math>\mu</math>m chip at 20 psi is used. Both low pressure and gentle microfluidics prevent activation of these cells during sorting</p>
<b>Neuroscience</b>	<p>Zia S, Hammond BP, Zirngibl M, et al. Single-cell microglial transcriptomics during demyelination defines a microglial state required for lytic carcass clearance. <i>Mol Neurodegener.</i> 2022;17:82. <a href="#">PubMed</a></p> <p>Faust TE, Feinberg PA, O'Connor C, et al. A comparative analysis of microglial inducible Cre lines. <i>Cell Rep.</i> 2023;42:113031. <a href="#">PubMed</a></p> <p>Hardwick SA, Hu W, Joglekar A, et al. Single-nuclei isoform RNA sequencing unlocks barcoded exon connectivity in frozen brain tissue. <i>Nat Biotechnol.</i> 2022;40:1082-1092. <a href="#">PubMed</a></p>	<p>In vitro differentiated or primary neuronal cultures can be sorted using the 100-<math>\mu</math>m and 130-<math>\mu</math>m chips. Debris and non-viable cells are gated out using FSC vs SSC. For sorting, a combination of DAPI and DRAQ5 is a useful approach to identifying viable cells and separating them from the debris. Extracellular Abantibodies such as NeuN may be considered for identification.</p> <p>Using the MA900 Cell Sorter, nuclei can be sorted by staining with DAPI and gating out cell debris and fractured nuclei.</p>
<b>Stem Cell Biology</b>	<p>Petrosius V, Aragon-Fernandez P, Üresin N, et al. Exploration of cell state heterogeneity using single-cell proteomics through sensitivity-tailored data-independent acquisition. <i>Nat Commun.</i> 2023;14:5910. <a href="#">PubMed</a></p> <p>Pan X, López Acevedo SN, Cuziol C, et al. Large-scale antibody immune response mapping of splenic B cells and bone marrow plasma cells in a transgenic mouse model. <i>Front Immunol.</i> 2023;14:1137069. <a href="#">PubMed</a></p> <p>Conchola AS, Frum T, Xiao Z, et al. Regionally distinct progenitor cells in the lower airway give rise to neuroendocrine and multiciliated cells in the developing human lung. <i>Proc Natl Acad Sci U S A.</i> 2023;120:e2210113120. <a href="#">PubMed</a></p>	<p>For sources such as GFP- or RFP-expressing organoids or embryos, the tissue is digested with Accumax, and the digested material is filtered into single-cell suspensions. Scatter gates (FSC vs SSC) are used to exclude dead cells and debris.</p> <p>Hematopoietic and progenitor stem cells are sorted using the 100-<math>\mu</math>m chip for obtaining high purity, viable target cell populations. Single-cell isolation of stem cells is often performed with the 130-<math>\mu</math>m chip, which supports a very low pressure of 10 psi and higher droplet volume, both of which can improve the sorting efficiency for downstream assays.</p>
<b>Microbiology</b>	<p>Lal PB, Wells F, Kiley PJ. Creation of markerless genome modifications in a nonmodel bacterium by fluorescence-aided recombineering. <i>Methods Mol Biol.</i> 2022;2479:53-70. <a href="#">PubMed</a></p> <p>Makowski EK, Chen H, Lambert M, et al. Reduction of therapeutic antibody self-association using yeast-display selections and machine learning. <i>MAbs.</i> 2022;14:2146629. <a href="#">PubMed</a></p> <p>de Souza MO, Madan B, Teng I-T, et al. Mapping monoclonal anti-SARS-CoV-2 antibody repertoires against diverse coronavirus antigens. <i>Front Immunol.</i> 2022;13:977064. <a href="#">PubMed</a></p>	<p>Sorting of bacteria and yeast using the MA900 Cell Sorter can be performed using the 70-<math>\mu</math>m chip. This supports a high throughput of between 15,000 and 30,000 events per second, and both high-purity and high-enrichment sorting can be achieved based on the sort mode selected.</p> <p>Microbes are robust in terms of cell growth and can withstand sort pressures of 40 psi using a 70-<math>\mu</math>m chip. Multiple rounds of sorting are also possible when creating yeast display libraries.</p>

## Selected Additional Publications

### Immunology

Breeuwsma M, Heesters BA. Protocol for the isolation and purification of human follicular dendritic cells for functional assays. *STAR Protoc.* 2023;4:102404. [PubMed](#)

Viola MF, Chavero-Pieres M, Modave E, et al. Dedicated macrophages organize and maintain the enteric nervous system. *Nature.* 2023;618:818-826. [PubMed](#)

Rege SV, Teichert A, Masumi J, et al. CCR3 plays a role in murine age-related cognitive changes and T-cell infiltration into the brain. *Commun Biol.* 2023;6:292. [PubMed](#)

Yoon HJ, Kim G-C, Oh S, et al. WNK3 inhibition elicits antitumor immunity by suppressing PD-L1 expression on tumor cells and activating T-cell function. *Exp Mol Med.* 2022;54:1913-1926. [PubMed](#)

Chen H-A, Ho Y-J, Mezzadra R, et al. Senescence rewires microenvironment sensing to facilitate antitumor immunity. *Cancer Discov.* 2023;13:432-453. [PubMed](#)

Dolton G, Rius C, Hasan MS, et al. Emergence of immune escape at dominant SARS-CoV-2 killer T cell epitope. *Cell.* 2022;185:2936-2951.e19. [PubMed](#)

### Neuroscience

Zia S, Hammond BP, Zirngibl M, et al. Single-cell microglial transcriptomics during demyelination defines a microglial state required for lytic carcass clearance. *Mol Neurodegener.* 2022;17:82. [PubMed](#)

Faust TE, Feinberg PA, O'Connor C, et al. A comparative analysis of microglial inducible Cre lines. *Cell Rep.* 2023;42:113031. [PubMed](#)

Hardwick SA, Hu W, Joglekar A, et al. Single-nuclei isoform RNA sequencing unlocks barcoded exon connectivity in frozen brain tissue. *Nat Biotechnol.* 2022;40:1082-1092. [PubMed](#)

Fixsen BR, Han CZ, Zhou Y, et al. SALL1 enforces microglia-specific DNA binding and function of SMADs to establish microglia identity. *Nat Immunol.* 2023;24:1188-1199. [PubMed](#)

Theorell J, Harrison R, Williams R, et al. Ultrahigh frequencies of peripherally matured LGI1- and CASPR2-reactive B cells characterize the cerebrospinal fluid in autoimmune encephalitis. *Proc Natl Acad Sci U S A.* 2024;121:e2311049121. [PubMed](#)

Adams JM, Rege SV, Liu AT, et al. Leukotriene A4 hydrolase inhibition improves age-related cognitive decline via modulation of synaptic function. *Sci Adv.* 2023;9:eadf8764. [PubMed](#)

### Stem Cell Biology

Petrosius V, Aragon-Fernandez P, Üresin N, et al. Exploration of cell state heterogeneity using single-cell proteomics through sensitivity-tailored data-independent acquisition. *Nat Commun.* 2023;14:5910. [PubMed](#)

Pan X, López Acevedo SN, Cuziol C, et al. Large-scale antibody immune response mapping of splenic B cells and bone marrow plasma cells in a transgenic mouse model. *Front Immunol.* 2023;14:1137069. [PubMed](#)

Conchola AS, Frum T, Xiao Z, et al. Regionally distinct progenitor cells in the lower airway give rise to neuroendocrine and multiciliated cells in the developing human lung. *Proc Natl Acad Sci U S A.* 2023;120:e2210113120. [PubMed](#)

Rodriguez-Meira A, Norfo R, Wen S, et al. Single-cell multi-omics identifies chronic inflammation as a driver of TP53-mutant leukemic evolution. *Nat Genet.* 2023;55:1531-1541. [PubMed](#)

Kan WL, Dhagat U, Kaufmann KB, et al. Distinct assemblies of heterodimeric cytokine receptors govern stemness programs in leukemia. *Cancer Discov.* 2023;13:1922-1947. [PubMed](#)

Yang R, Cao D, Suo J, et al. Premature aging of skeletal stem/progenitor cells rather than osteoblasts causes bone loss with decreased mechanosensation. *Bone Res.* 2023;11:35. [PubMed](#)

Zhou L, Wu D, Zhou Y, et al. Tumor cell-released kynurenine biases MEP differentiation into megakaryocytes in individuals with cancer by activating Ahr-RUNX1. *Nat Immunol.* 2023;24:2042-2052. [PubMed](#)

### Microbiology

Lal PB, Wells F, Kiley PJ. Creation of markerless genome modifications in a nonmodel bacterium by fluorescence-aided recombineering. *Methods Mol Biol.* 2022;2479:53-70. [PubMed](#)

Makowski EK, Chen H, Lambert M, et al. Reduction of therapeutic antibody self-association using yeast-display selections and machine learning. *MABs.* 2022;14:2146629. [PubMed](#)

de Souza MO, Madan B, Teng I-T, et al. Mapping monoclonal anti-SARS-CoV-2 antibody repertoires against diverse coronavirus antigens. *Front Immunol.* 2022;13:977064. [PubMed](#)