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| Program Director/Principal Investigator (Last, First, Middle): |       |
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| RESOURCES |
| Follow the 398 application instructions in Part I, 4.7 Resources. |
| **Investigators preparing grant proposals or manuscripts that involve Flow Cytometry Shared Resource instruments or flow cytometry data support are encouraged to contact Yue Li, Ph.D. (FCSR Director) for a consultation, letter of support and Resources section that is specifically tailored to the goals of the grant proposal.****UT Health San Antonio Flow Cytometry Shared Resource**The UT Health San Antonio Flow Cytometry Shared Resource (FCSR) has been a Cancer Center-supported Shared Resource since 1991. The mission of the FCSR is to deliver high-throughput, multi-dimensional cell analysis and cell sorting using state-of-the-art equipment for Mays Cancer Center (MCC) members, University of Texas Health San Antonio (UT Health SA) investigators, and others in the San Antonio area. The main FCSR facility is centrally located in 863 sq ft of dedicated space on the 5th floor of the Long School of Medicine (room 5.044V) on the main campus of UT Health San Antonio. A satellite FCSR facility occupying 650 sq. ft. in the South Texas Research Facility (STRF, room 251) is located one mile from the main campus. The FCSR is administered through the Office of the Vice President for Research in coordination with the Assistant Director for Basic Research of the NCI-designated UT Health San Antonio MD Anderson-Mays Cancer Center. The FCSR is overseen by a tenured faculty Scientific D­­­­irector (Michael Berton, Ph.D.) and managed by the Core Director (Yue Li, Ph.D.), who is assisted by three full-time research core technologists. Access to the FCSR is available to all UT Health San Antonio investigators with priority given to NIH-funded investigators and Mays Cancer Center members. The FCSR provides flow cytometry services to over 70 laboratories at UT Health SA, other local and regional university laboratories, and several commercial laboratories in San Antonio. The main campus FCSR facility includes two negative pressure cell sorter rooms certified at BSL-2 biosafety level with enhanced precautions. This allows the core to analyze and sort all NIH/CDC designated biosafety level 2 agents which include primary human cells and cell lines, all transfected cell lines, and live cells containing known level-2 pathogens. All core personnel are trained in proper BSL-2 safety procedures. This includes handling of samples, proper personal protective equipment (PPE), and transportation and disposal of specimens. In addition, the main facility includes a large wet lab space housing three cell analyzers and two computer stations for data analysis. The STRF FCSR facility includes one negative pressure room for cell sorting and a separate wet lab space for cell analysis and data processing. Both facilities have Class II Type A2 biosafety cabinets for safe cell sorting and sample handling. Scheduling of instruments, training, and billing are performed through iLab, a campus-wide core operations software (Agilent Technologies, Inc).Cell analysis can be performed on four analyzers: a 5-laser Cytek Aurora (355nm, 405nm, 488nm, 561 nm, & 640nm) with 64 fluorescence detection channels that cover the emission spectrum from 365nm to 829nm, a 5-laser BD FACSymphony A5 SE (355nm, 405nm, 488nm, 561nm, & 637nm) with 48 fluorescence detection channels spanning the emission spectrum from 362nm to 880nm, a BD LSRII equipped with 4 lasers (405nm, 488nm, 561 nm, & 640nm) capable of analysis of up to 11 colors, and a BD FACSCelesta equipped with 3 lasers (405nm, 488nm, & 640nm) capable of analysis of up to 12 colors. Cell sorting is performed on any of the three sorters: a BD FACSAria Fusion equipped with 5 lasers (355nm, 405nm, 488nm, 561nm & 633nm) capable of detecting up to 18 fluorescence colors and can perform 4-way and single cell sorting, a BD FACSymphony S6 SE, the configuration of which matches BD FACSymphony A5 SE and is capable of 6-way and single-cell sorting, and a benchtop Beckman Coulter CytoFLEX SRT which is equipped with 4 lasers (405nm, 488nm, 561nm, & 633nm) capable of detecting up to 13 fluorescence channels. Both FACSAria Fusion and FACSymphony S6 SE are enclosed in Class II Type A2 biosafety cabinets housed in a negative pressure room for BSL-2 containment. Both labs are available 24/7 to trained users.The FCSR provides instrument-based services in three major categories:A. Flow Cytometry Multiparameter Cell Sorting – Cells can be sorted into microtiter plates or tubes. Applications include multiparameter sorting of subpopulations of cells (e.g. tumor cells, cancer stem cells and tumor-reactive lymphocytes), sorting of transgenic (knock-in or knock-out) cells marked by a fluorescent protein, and single cell sorting for clonal expansion or downstream genomic and/or transcriptomic analysis. B. Flow Cytometry Multiparameter Cell Analysis – Applications include DNA analysis, cell cycle analysis, apoptosis, high-parameter cell phenotyping with cell surface and intracellular markers, reduced glutathione content and ROS quantification, pH and Ca++ flux measurements, measurement of mitochondrial membrane potential changes, and analysis of cytokine expression.C. Training and Certification for self-user access – The FCSR provides training programs to users for 24/7 self-operation of flow cytometry analyzers as well as data analysis using software such as BD’s FlowJoTM and Dotmatics’ OMIQ to ensure high-fidelity, reproducibility, and high-quality data presentation and interpretation.The FCSR also offers users non-instrument-based services, which include:·   Consultation on experimental design and data analysis.·   Preparation of figures, methodologies, and cost-projections for manuscripts and grant applications.·   Letters of support for grant applications.·   Access to iLab software for scheduling, fees, descriptions of instrumentation and policies, and SOPs.·   Training in techniques, applications, software packages, and cytometry theory.·   Lecture-based seminars for training in new technologies. |

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