The Southeastern Biosafety Laboratory Alabama Birmingham (SEBLAB)

A top tier biocontainment research facility to advance your BSL-3 and ABSL-3 research program

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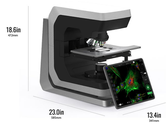
Imaging (in vitro)

A.

B.

C.



Instrument	Illumination, Objectives	Fluorophores	Resolution, Speed	Pros	Cons	Sweet spot(s)
A. Zeiss Lattice Lightsheet 7 Microscope	• LED (BF), 488 nm, 561 nm, 640 nm • 13.3x NA 0.4 Illumination • 44.9x NA 1.0 Detection	• BF, FL (490-740 nm)	• Voxel 145 nm x 145 nm x 145 nm • Volume: 3 Volumes/s @ approx. 300 µm × 50 µm × 20 µm • Plane: 400 frames/s @ approx. 300 µm × 20 µm	• Very low phototoxicity • Fast repeated imaging • Arivis analysis software • CO_2 controller	• 3 colors, no DAPI • Limited magnification • Data sets can be very large	• Dynamic sub-cellular processes that require • repeated (fast or long-term) imaging • Cell monolayers, organoids up to 200 um thick • Phagocytosis, vesicle trafficking, immune synapse, sub-cellular localization
B. Agilent Cytation 10 Confocal plate reader with Biostack 4	• LED (BF), 405 nm, 470 nm, 520 nm, 640 nm • 1.25x, 4x, 10x, 20x, 40x, 60x (air, long working distance)	• BF, FL (DAPI, GFP, Cy5, Texas Red, RFP), LUX, UV-VIS • Many additional objectives and cube sets available	• 40 µm and 60 µm spinning disks • 96 well plate: Imaging: 8 min 9 seconds Sweep mode: 10 seconds	• Up to 4 colors • Confocal resolution, magnification • Plate loader for fixed cell applications • Gen 5 analysis software • CO_2/O_2 controller	• Incomplete imaging of well edges • Relatively slow imaging of live cells • Data sets can be very large	• Plate reader assays (live or fixed) • Long-term imaging with confocal resolution
C. Echo Revolve Fluorescence Microscope	• LED (BF), 405 nm, 488 nm, 555 nm, 640 nm • 4x, 10x, 20x, 40x, 100x (oil)	• BF, FL (DAPI, GFP, Cy5, Texas Red)	• 3 channels, 111x25 µm square images in 5 seconds	• Simple, touch screen control, suitable for use with PAPR hood • Fast imaging	• No long-term live imaging • No CO_2 controller • Limited analysis	• Multicolor, fast imaging without fixation

Core Research Team

Available now to help PIs and research teams integrate new equipment into current and future research plans

Pilot Grants Available

Starting 2026

Imaging (in vivo)

D.

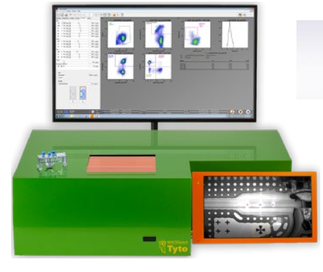
G.

E.

F.

Instrument	Location	Imaging Modes, Features, Animals	Pros	Cons	Sweet spot(s)
D. IVIS Lumina III	143 ABLS3	• 2D BF, FL (red, far red), LUX • *In vivo, ex vivo* • Isoflurane anesthesia • Mouse only, up to 5	• Repeated measurements • Good LUX sensitivity	• FL limited tissue penetration • Far red fluorophores are uncommon • Not high resolution	• Track disease progression, dissemination, resolution
BIOEMTECH E. Beta Eye F. Gama Eye Imagers Scanners	143 ABSL3	• 2D PET, BF • 2D SPECT, BF • *In vivo, ex vivo* • Isoflurane anesthesia • Mouse only, 1 only	• Simple to use • Sensitive radioactive probes • Wide range of radionuclides can be used	• Combined pathogen, radioactivity hazardous materials • Limited commercial availability of probes • One animal at a time	• Track disease progression, dissemination, resolution • Track drug, Ab probe localization, accumulation, elimination
G. MiLabs µCT	143 ABSL3	• 3D µCT • Isoflurane anesthesia • Mouse, Rat, Hamster,	• Non-invasive, repeated imaging	• Limited scope of contrast agents • One animal at a time • Animals are exposed to x-rays	• Longitudinal tracking of clinically significant lesions

Miltenyi MACSQuant Tyto Cell Sorter and Flow Cytometer (BSL3)



CosMx Spatial Molecular Imager

- Spatial single-cell transcriptomics
- FFPE or FF samples (BSL2)
- Human (HS), Mouse (MM)
- RNA Probe sets: 1k-plex (HS, MM), 6k-plex (HS), whole-transcriptome (HS), custom panels (HS, MM)
- RNA+protein multiomics (HS)
- Single-cell resolution (50 nm x,y)

Chromium X controller (and Biorad F100 thermocycler)

- GEM generation and cDNA preparation for 10X Genomics scRNAseq workflow
- Deployable to any BSL3 suite

Aerobiology (ABSL3)

- **Buxco Inhalation Exposure Tower**
- Controlled nose-only exposure of pathogen, antigen or drug to mouse, rat, guinea pig, or ferret

- **SciReq FlexiVent**
- *In vivo* lung function measurement for mouse, rat or ferret

A.

B.

C.

D.

Pandemic preparedness core (BSL2). A. ProMega Maxwell RSC 48 nucleic acid extraction system. B. Applied Biosystems QuantStudio 7 Dx Pro RT-PCR. C. Qiagen QIACuity 4 digital PCR. D. Biotechne Protein Simple Ella Next Generation Elisa system.