Principal Investigator: Date Approved:

**Imaging Live Cells**

This SOP applies to imaging live cells.

Many imaging processes cannot be conducted in a biosafety cabinet or other aerosol-containment device owing to the size or sensitivity of the equipment. Therefore, alternative safety measures are needed when imaging biohazardous materials. Imaging processes that involve live cells in open containers or flow cells require additional PPE and/or splash shields to protect from splashes/sprays/aerosols. Imaging processes involving only closed containers may be done at lower containment levels depending on the risk assessment.

**Personal Protective Equipment**

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**BSL1 or BSL2**

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**BSL2+**

**Engineering Controls, Equipment, and Materials**

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| **Biosafety Cabinet** | Enclosed, ventilated laboratory workspace that protects the worker from aerosols |
| **Transport Container** | Rigid, non-porous, leak-resistant container with a tight-fitting lid and biohazard label that is large enough to contain the samples |
| **Disinfectant** | Appropriate for the agents (see Decontamination SOP) and the equipment |
| **Biohazard Waste Container(s)** | Solid, sharps and/or liquid waste containers, as appropriate, compliant with medical waste handling requirements |

**Procedures**

1. Prepare samples for imaging within a biosafety cabinet
2. Transport samples in secondary containment to the imaging station if leaving the containment facility (see Biohazardous Material Transport SOP)
3. Perform imaging: eye protection may be removed once the sample has been placed on the imaging platform unless required to prevent exposure to laser beams
4. Return samples to secondary containment
5. Dispose of waste following medical waste handling SOPs or hazardous chemical waste requirements
6. Disinfect imaging station using an appropriate disinfectant

**Cautions and Considerations**

* Eye protection (safety glasses or goggles) or a splash shield is required if a splash or spray is anticipated, e.g., from imaging open containers or flow cell setups
* A respirator may be required for imaging open containers of airborne-transmissible pathogens or if aerosolization is likely (e.g., some flow cell setups)
* Use plastic alternatives to glass whenever possible (e.g., slide covers, slides) and avoid handling required glass items with hands (forceps are recommended)
* Use of a secondary transport container is good practice even if the imaging station is in the same room
* If liquids are aspirated during the imaging process, see the Aspiration Flask Setup, Use & Maintenance SOP
* If the imaging setup involves lasers (open-beam or enclosed), contact EHS.