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This manual is a **living document**. Personnel must read it before beginning any work in a Meridian laboratory and re-read the current version annually. Printed copies are uncontrolled; always verify the current version on the EHS SharePoint portal.

1. Purpose & Scope

This Laboratory Safety Manual establishes minimum safety requirements for all personnel conducting research, teaching, or support activities in Meridian BioSciences laboratories. It applies to:

- All full-time and part-time employees, including technicians and research associates.
- Graduate students, postdoctoral fellows, visiting scholars, and interns.
- Contractors and service engineers working inside laboratory spaces.

This document supplements but does not replace applicable federal, state, and local regulations, including OSHA 29 CFR Part 1910 (General Industry), EPA 40 CFR Parts 260–270 (Hazardous Waste), and NFPA 45 (Standard on Fire Protection for Laboratories Using Chemicals).

2. Roles & Responsibilities

Role	Primary Responsibilities
EHS Manager	Develop and maintain this manual; conduct inspections; manage incident reporting; liaise with regulatory agencies.
Principal Investigator (PI)	Ensure group members are trained; maintain current chemical inventory; enforce compliance; conduct lab-specific safety orientation.
Lab Supervisor	Day-to-day oversight of safe work practices; maintain first-aid kits and eyewash stations; update Standard Operating Procedures (SOPs).
Laboratory Personnel	Complete required training before using chemicals or equipment; report hazards and near-misses immediately; follow posted SOPs.
Facilities	Maintain ventilation, safety showers, eyewash stations, and building infrastructure; respond to EHS requests within 24 hours.

3. General Laboratory Rules

1. No food or drink is permitted in any laboratory space.
2. Closed-toe shoes and long trousers are mandatory at all times.
3. Working alone is **prohibited** when using acutely toxic, explosive, or highly reactive materials.
4. Keep all exits, aisles, and emergency equipment clear at all times.
5. Label every container: chemical name, concentration, hazard, preparer, and date.
6. Never pipette by mouth; never smell or taste chemicals.
7. Report **all injuries, spills, and near-misses** to the lab supervisor and EHS within 1 hour.
8. Inspect equipment and glassware for defects before use; discard cracked glassware immediately.
9. Secure compressed gas cylinders to a wall bracket or cart at all times.

Working in the laboratory outside normal hours (before 07:00 or after 19:00) requires written approval from your PI and a **buddy system**: a second person must be present or conducting remote check-ins every 30 minutes.

4. Personal Protective Equipment (PPE)

PPE Item	Standard	Required When / Notes
Safety Glasses	ANSI Z87.1	Always in lab. Prescription glasses do not substitute; use over-glasses if needed.
Chemical Goggles	ANSI Z87.1 splash-proof	Corrosives or volatile organics. Must seal to face.
Lab Coat	100% cotton, knee-length	Always in lab. Fire-resistant (FR) coat required for pyrophoric work.
Nitrile Gloves	4-mil minimum	Handling any chemical. Inspect before each use; discard if torn.
Chemical-Resistant Gloves	Butyl or neoprene	Strong acids/bases, halogenated solvents. Check SOP-EHS-07 compatibility chart.
Face Shield	ANSI Z87.1	Dispensing concentrated acids/bases. Worn over goggles.
Respirator	NIOSH half-mask	Per SDS or air monitoring data. Medical evaluation and fit-test required.

5. Chemical Hazards & Storage

5.1. GHS Hazard Class Quick Reference

Hazard Class (GHS)	Storage Requirements
Flammable Liquids (Cat 1–2)	Flammable storage cabinet; away from ignition sources; ≤10 L on bench.
Corrosives (Acid/Base)	Acid cabinet; acids and bases separated; secondary containment.
Oxidisers	Isolated from organics and flammables; dedicated oxidiser cabinet.
Acutely Toxic (Cat 1–3)	Locked cabinet; access log required; quantities minimised to daily needs.
Carcinogens / Mutagens	Designated area with posted signage; fume hood use mandatory; SOPs required.
Compressed Gases	Chained upright; segregate oxidisers from flammables; protective caps on when not in use.
Cryogenic Liquids	Insulated Dewar vessels; never seal tightly; face shield and cryo gloves required.
Pyrophorics	Strict written SOP; inert atmosphere; trained personnel only; EHS pre-approval required.

Incompatible chemicals must never be stored together. Key incompatible pairs at Meridian: **Hydrofluoric acid** — do not store with bases or in glass containers; **Perchloric acid** — isolate from all organics; **Sodium azide** — never contact copper, lead, or acid. Consult SOP-EHS-03 for the complete incompatibility matrix.

6. Emergency Procedures

6.1. Chemical Spill

1. **Assess** — determine identity and quantity. If unknown or >1 L of hazardous chemical, **evacuate** and call EHS immediately.
2. **Alert** — notify others in the area; prevent re-entry.
3. **Contain** — for small spills (<1 L of known material), don appropriate PPE and use the nearest spill kit.
4. **Clean up** — absorb with inert material (vermiculite or spill pads); seal in a labelled container.
5. **Decontaminate** — clean the area thoroughly; remove and bag contaminated PPE.
6. **Report** — complete an incident report on the EHS portal within 24 hours.

6.2. Fire — RACE Protocol

1. **Rescue** anyone in immediate danger (only if safe to do so).
2. **Alarm** — pull the nearest fire alarm; call **911**.
3. **Contain** — close all doors and windows to limit spread.
4. **Evacuate** — use nearest stairwell (no elevators); assemble at **East Parking Lot, Zone B**.
5. Use a fire extinguisher (PASS: Pull, Aim, Squeeze, Sweep) only for small, contained fires, and only if trained.

6.3. First Aid & Injury

- **Eye exposure:** Flush immediately at the nearest eyewash station for **15 minutes minimum**; seek medical evaluation.
- **Skin contact:** Remove contaminated clothing; flush with water for 15 minutes at the safety shower; seek medical evaluation for corrosive or toxic materials.
- **Inhalation:** Move to fresh air; call 911 if person is unconscious or shows respiratory distress.
- **Ingestion:** Call Poison Control at **1-800-222-1222**; do not induce vomiting unless directed; call 911 for life-threatening exposure.

7. Waste Disposal

All chemical waste must be managed in accordance with EPA 40 CFR and applicable state regulations. Key requirements:

- Accumulate waste in **compatible, closed containers** labelled “Hazardous Waste”, with full chemical name, concentration, and hazard class.
- **Never** pour chemicals down the drain without written EHS authorisation.
- Satellite accumulation containers must remain ≤ 55 gallons and be stored at the point of generation.
- Request waste pickup via the **EHS Waste Portal** (`waste.meridian.internal`) when containers reach 75% capacity.
- Biological waste must be **autoclaved** or placed in designated biohazard bags before disposal.
- Sharps (needles, blades, broken glass) must go in **puncture-resistant sharps containers**; contact EHS for disposal.

Disposing of hazardous chemicals via the sink or drain without authorisation is a **federal violation** subject to fines exceeding \$37,500 per day per violation. When in doubt, treat it as hazardous waste.

8. Emergency Contacts

Role / Service	Name / Location	Contact
Emergency Services (Police/Fire/EMS)	—	911
Poison Control Center	—	1-800-222-1222
EHS Manager	Dr. Rebecca Okafor	ext. 4-7200
EHS Emergency Pager (24/7)	On-call EHS Officer	1-617-555-0192
Campus Security	—	ext. 4-7911
Occupational Health Clinic	Meridian Health Centre, Bldg. C	ext. 4-5500
Chemical Spill Response	Clean Harbors Environmental	1-800-645-8265
Radiation Safety Officer	Dr. Thomas Ng	ext. 4-7205
Biosafety Officer	Dr. Anita Krishnamurthy	ext. 4-7208

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