Meridian Neurodynamics Lab

Research Lab Onboarding Handbook

1 Welcome to the Lab

Welcome aboard — we are genuinely glad you are here. This handbook is the single place we keep the norms, tools, and procedures that make Meridian Neurodynamics Lab a good place to do careful, collaborative work. It will not answer every question, but it should answer the ones that come up in your first month. When it does not, ask; nobody expects you to guess.

We study how populations of neurons coordinate rhythmic behaviour, using a mix of electrophysiology, computational modelling, and behavioural experiments in small rodents. The lab currently has eleven members: one principal investigator, one lab manager, three postdoctoral researchers, five PhD students, and one research technician. You are joining at an interesting moment: our *oscillatory coupling* project just received a renewal (see §4 for how project data is organised) and two new preprints are in preparation.

Lab at a Glance

Principal Investigator: Dr. Elena Kowalski
Lab Manager: Marcus Chen
Location: Draystone Life Sciences Bldg, 4th Floor, Rooms 412–418
Founded: 2016
Focus areas: systems neuroscience, computational modelling, behavioural neuroscience

Our Working Principles

1. Data integrity before deadlines.
2. Ask early, ask often — confusion is cheap, rework is not.
3. Every animal, every dataset, every collaborator is treated with care.
4. We document as we go, not after the fact.

Our Mission

We aim to build mechanistic, testable accounts of how neural rhythms support memory and movement, and to share the tools and data behind that work openly enough that other labs can build on it rather than repeat it. Your projects, however small, contribute to that record.

How This Handbook Is Organised

Section 2 covers day-to-day norms: communication, meetings, and authorship. Section 3 covers safety essentials you must complete before touching any equipment or animal work. Section 4 covers the software stack and our data policy. Section 5 is your first-week checklist, and Section 6 lists who to contact for what.

2 Lab Culture & Norms

Communication

We keep communication low-friction and searchable. Day-to-day questions go in the lab chat channel; anything that should be findable in six months (a decision, a protocol change, a result) goes in the shared lab notebook instead, even if it started as a chat message.

- **Chat channel** — quick questions, scheduling, "is anyone using rig 2 today."
- **Weekly lab meeting** — Wednesdays, 10:00–11:30, Room 414. One data talk, one paper discussion, rotating.
- **One-on-ones** — every trainee meets Dr. Kowalski at least once every two weeks; put time on her calendar directly.

- **Email** — reserved for anything involving people outside the lab (collaborators, IACUC, facilities).

Working Hours & Flexibility

There is no lab-wide clock-in requirement. We care about experiments run correctly and on schedule, not about hours logged. Two things are non-negotiable: animal-care duties are covered on the day you are assigned, and you are reachable during any procedure you are running solo. Beyond that, arrange your schedule with your direct mentor.

Authorship & Credit

Authorship follows ICMJE criteria (see Further Reading): substantial contribution to design, data, or analysis, drafting or critical revision, final approval, and accountability for the work. Order is discussed openly at project kickoff and revisited if contributions shift — nobody should find out where they land only at submission. Undergraduate contributors are credited in acknowledgements at minimum, and as co-authors when the ICMJE bar is met.

Giving and Receiving Feedback

Data talks and manuscript drafts get read line-by-line, out loud if needed. Critique is aimed at the work, not the person, and is expected to come with a suggestion, not just a flag. If feedback in a meeting ever feels personal rather than substantive, say so, or bring it to Dr. Kowalski or Marcus directly.

Cadence	What Happens
Daily	Bench notes logged in Vertex ELN before you leave for the day.
Weekly	Lab meeting (Wed); rig and reagent inventory check (Fri, rotating).
Biweekly	One-on-one with Dr. Kowalski; project sub-group check-in.
Monthly	Data backup verification; safety walkthrough of your bench area.
Quarterly	Individual development plan review with your mentor.

Table 1: Recurring lab rhythms — these are the ones people forget in week one.

3 Safety Essentials

Safety training is not a formality here — you may not badge into the vivarium, run the electrophysiology rigs, or handle any chemical reagent until the items below are complete and logged with Priya Anand, our safety officer.

⚠ Before You Touch Any Equipment

Complete, in this order: (1) institutional biosafety and chemical-hygiene training, (2) rig-specific training with your assigned mentor, (3) IACUC animal-handling certification if your project involves live animals. Priya signs off on each stage in the Vertex ELN training log — keep your copy.

Personal Protective Equipment

Chemical & Biological Safety

- Check the Safety Data Sheet (SDS) binder (Room 412, by the door) before first use of any new reagent; SDS PDFs are also linked from each reagent's entry in Vertex ELN.
- Fixatives (paraformaldehyde, glutaraldehyde) are prepared only in the designated fume hood — never at an open bench.
- Sharps (needles, blades, broken glass) go in the red sharps container only, never in general waste.

Area	Minimum PPE
Wet lab bench	Lab coat, safety glasses, nitrile gloves.
Surgery suite	Sterile gown, mask, hair cover, sterile gloves, shoe covers.
Vivarium	Dedicated scrubs (do not wear outside), gloves, N95 if on the respirator list.
Electrophysiology rig	Lab coat, safety glasses when handling saline/sharps; no PPE needed at the console.
Chemical hood work	Lab coat, splash goggles, nitrile gloves rated for the reagent in use.

Table 2: PPE requirements by area. When in doubt, ask Priya before you start.

- Biological waste (tissue, blood, contaminated consumables) is double-bagged and labelled before pickup; log the pickup request in Apex Booking under "Waste."
- Radioactive and controlled substances are not currently used in this lab; if your project changes that, speak with Priya before ordering anything.

Emergency Procedures

⚠ Spill or Exposure

Chemical splash to skin/eyes: flush at the nearest eyewash/shower for 15 minutes, then call Campus Safety. Small dry-lab spills: use the spill kit under the sink; do not attempt cleanup of anything on the SDS "evacuate" list.

⚠ Fire or Medical Emergency

Call Campus Safety at 555-0100 first, every time — even if it seems minor. Pull stations and the first-aid kit are on the wall by Room 412. Do not re-enter the building until Campus Safety clears it.

Incident Reporting

Every incident, near-miss included, gets logged in Vertex ELN's "Incident" form within 24 hours — this protects you and helps us fix the underlying cause, not just the symptom. There is no penalty for reporting a near-miss; there is a real cost to a pattern nobody wrote down.

4 Tools & Data Policy

Software Stack

Tool	Used For	Notes
Vertex ELN	Electronic lab notebook	Log every experiment the day it happens; templates per project live under *Protocols*.
Synapse Cluster	Compute (analysis, models)	Request an account from Owen Fitzgerald in week one; jobs over 4 hours go through the queue, not an interactive node.
Nimbus Drive	Raw data storage & backup	Auto-syncs from rig acquisition PCs nightly; never store raw data only on a local disk.
Apex Booking	Equipment & room scheduling	Book rigs, the surgery suite, and waste pickup here; walk-up use without a booking is not permitted.
Nexa Reference	Citation management	Shared library "Meridian-Lab" — add new papers as you read them, tag by project.

Table 3: Core software — accounts for the first three are set up before your first solo experiment.

Data Management Policy

- **Storage.** Raw data lives on Nimbus Drive under `/projects/<project>/raw/`; analysis code and derived data live in the matching `/derived/` folder. Nothing important lives only on a laptop.
- **Backup.** Nimbus Drive is backed up nightly and versioned for 90 days. Electrophysiology rigs additionally write a same-day copy to the rig PC's local disk, cleared once Nimbus confirms sync.
- **Naming.** Files follow `YYYYMMDD_subjectID_condition_v#`. Consistency here is what makes a dataset usable by someone other than you in two years.
- **Retention.** Raw data and lab notebooks are retained for a minimum of 7 years past publication, per university policy and our funders' requirements.
- **Access & sharing.** Data is shared within the lab by default; sharing outside the lab (collaborators, repositories, reviewers) requires your mentor's sign-off, logged as a note in the project's Vertex ELN page.
- **De-identification.** Any human-subjects data (surveys, pilot studies) is de-identified at the point of entry — no names or identifiers in filenames, folder names, or code.
- **Public release.** On publication, processed data and analysis code are deposited to a public repository under an open licence, consistent with our funders' data-sharing plans (see Further Reading).

Code Conventions

Analysis code lives in the lab's shared repository, one folder per project, with a short `README` describing what each script produces. Commit messages describe *why*, not just *what* — the diff already shows what changed.

5 First-Week Checklist

Print this page, or keep the Vertex ELN copy open — either way, work through it in order. Your mentor and Marcus will check in with you on Friday to close out anything outstanding.

Day 1 — Orientation

- ☑ Get your building badge and key from Marcus Chen (Room 414).
- ☑ Set up your Vertex ELN, Nexa Reference, and lab chat accounts.
- ☑ Read Sections 2–3 of this handbook.
- ☑ Meet your assigned mentor and agree a first-month project outline.

Days 2–3 — Safety & Access

- ☑ Complete institutional biosafety and chemical-hygiene training.
- ☑ Locate the eyewash stations, spill kit, and fire pulls on your floor.
- ☑ Review the SDS binder for the reagents your project will use.
- ☑ Request your Synapse Cluster account from Owen Fitzgerald.

Days 4–5 — Getting Hands-On

- [x] Shadow your mentor on one full experimental run, start to finish.
- [x] Book your first supervised rig session in Apex Booking.
- [x] Clone the lab's shared code repository and run its example analysis.
- [x] Log your Day 4–5 notes in Vertex ELN before you leave Friday.

By End of Week 2

- [x] Rig-specific training signed off by your mentor in Vertex ELN.
- [x] IACUC animal-handling certification scheduled or complete, if applicable.
- [x] First one-on-one with Dr. Kowalski held.
- [x] Individual development plan drafted with your mentor.

6 Key Contacts & Resources

Name	Role	Ask Them About
Dr. Elena Kowalski	Principal Investigator	Project direction, authorship, funding
Marcus Chen	Lab Manager	Badges, keys, orders, day-to-day logistics
Priya Anand	Safety Officer	PPE, training sign-off, incident reports
Owen Fitzgerald	Data & Compute Steward	Synapse Cluster, Nimbus Drive, backups
Dr. Sofia Reyes	Postdoc Mentor Lead	Mentorship pairing, career development

Table 4: Who to ask. If you are not sure, start with Marcus — he will route you.

Outside the Lab

Campus Safety: 555-0100 (24 hr)
IACUC Office: iacuc@draystone.edu
Building Facilities: 555-0142
IT Helpdesk: helpdesk@draystone.edu

Further Reading

Authorship criteria [2]; biosafety practice [4]; data management planning [3]; on mentoring well [1].

Questions about this handbook itself, or suggestions for what it is missing, go to Marcus — it is revised every semester based on exactly that feedback.

References

[1] Committee on Science, Engineering, and Public Policy. *Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering.* National Academy Press, Washington, DC, 1997.

[2] International Committee of Medical Journal Editors. Recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals. `https://www.icmje.org/recommendations/`, 2024. Section II: Authorship and Contributorship.

[3] National Institutes of Health. Data management and sharing policy. NIH Office of Science Policy, 2023. Effective for all NIH-funded research.

[4] National Research Council. Biosafety in the laboratory: Prudent practices for the handling and disposal of infectious materials. Technical report, National Academies Press, Washington, DC, 2020.