NASA SPACE APPS CHALLENGE 2026 · FINAL COMPETITION RELEASE

MITOCHONDRIA

NASA Evaluator Quick Start Guide

Final Competition Edition · 14 November 2026 · a 15–20-minute guided demonstration

https://mitochondria.edocinfo.com

A functional, integrated, open-source astronaut health intelligence research platform

Research prototype with human oversight. Synthetic data only. Not NASA-endorsed, not clinically validated, not flight-qualified, not connected to NASA astronaut telemetry.

1. Purpose and Duration

This guide lets an evaluator see MITOCHONDRIA working end to end in **15–20 minutes** — without administrative database access, without real patient data and without any mandatory physical sensor. It shows a functional, integrated research platform: live monitoring that never invents a value, offline-first encrypted storage, mission-scoped roles enforced in the database, synthetic laboratory-evidence review with independent Ground Medical oversight, and research-only scientific interpretation, including the Health Intelligence Research Explorer of 54 provisional biomarker proposals.

Table 1. Demonstration paths

Path	Duration	Needs
A · Public tour	≈ 8 minutes	A browser. No account.
B · Role-based workflows	≈ 11–12 minutes	Synthetic role accounts provided by the project owner (Crew Self, Ground Medical, Researcher; Mission Operator optional). Every role step has an alternative if an account is not available.

Live application	https://mitochondria.edocinfo.com
Release	Final Competition Edition — release commit `4e448ea`. Quality and Security Scan pass; the Medical v3 Release Gate stays blocked by design pending owner evidence (Manual Section 32.1)
Companion documents	Master Operations & Technical Manual (FINAL), NASA Space Apps 2026 Presentation (FINAL), the final demonstration video and the Scientific Evidence and Limitations summary
Status labels	OPERATIONAL · FIELD-VERIFIED · SYNTHETIC DEMONSTRATION · RESEARCH-ONLY · VALIDATION BOUNDARY · OUT OF SCOPE — defined in Manual Section 1.2
Evidence classes	E1 implemented and verified · E2 synthetic or simulated only · E3 not independently verified · E4 planned or disabled — defined in Manual Section 1.2

NOTE — Some pages show a short module label above the page title (for example “P17 · Simulation & synthetic mission dataset”). These labels identify the software module and can be ignored during the demonstration.

2. What You Will and Will Not See

You will see	You will not see — by design
Mission-scoped roles and identity states	Diagnoses, risk scores, readiness verdicts, alerts or treatment
Live capture states with honest freshness and storage evidence	Fabricated sensor values — unconnected cards stay DISCONNECTED
Local, encrypted, offline-first operation	Live NASA astronaut data
Synthetic laboratory-report review with exact catalogue matching	Real medical documents
Independent Ground Medical review of synthetic batches (the eight-value FV01-TEST-B batch)	Clinical approval — research decisions are synthetic and research-only; the original batch is viewed, never decided
A Daily Health Companion with environments, routine, optional reminders and data-quality colours	Prescribed measurement schedules, push notifications or health scores

You will see	You will not see — by design
Private views that hide themselves on tab return and mission switch, then reappear only if still authorized	Real-time revocation of an idle, continuously visible page (detected on the next return, sign-in change or request)
Aggregate-only research export with server-side suppression	Row-level research exports or re-identification
Research-only science: handbooks, draft catalogues, NASA OSDR metadata	Activated scientific rules — scientific content awaits independent review

3. Before You Start

Table 2. Prerequisites

Requirement	Detail
Device	Laptop or desktop with a current Chrome, Edge, Firefox or Safari. Optional: an Android phone with Chrome for the camera pulse step.
Connection	HTTPS access to the live application. One optional step uses airplane mode.
Accounts (Path B)	Synthetic Crew Self, Ground Medical and Researcher accounts (Mission Operator optional) issued by the project owner through an approved channel. This guide publishes no credentials. Use a separate browser profile or private window per role. Use only the owner-designated synthetic demonstration accounts.
Mission	The synthetic mission the owner has assigned to your accounts.
Synthetic file	The repository's synthetic laboratory-report fixture (TXT gives the most reliable exact matching). Never use a real report.
Ground rules	Use only the access your account has; never attempt to bypass role-based access. Use create, save-to-Cloud or decision buttons only when the owner has authorized that action for your session.

3.1 Exact URLs used in the demonstration

Table 3. Route reference (… = https://mitochondria.edocinfo.com)

Page	URL	Account
Home	https://mitochondria.edocinfo.com/	None
Device Integration Center	https://mitochondria.edocinfo.com/mission/devices	None
Live Monitoring	https://mitochondria.edocinfo.com/mission/live	None (Crew Self for mission-bound capture)
Daily Health Companion	https://mitochondria.edocinfo.com/mission/companion	None (Crew Self for own trends)
Unified Data Intake · Health Report	…/mission/intake · …/mission/health-report	None to view; authorized crew to record or report
Mission Scenario	https://mitochondria.edocinfo.com/mission/simulation	None
NASA Scientific Evidence	https://mitochondria.edocinfo.com/mission/nasa-evidence	None
Health Intelligence + Research Explorer	https://mitochondria.edocinfo.com/mission/intelligence	None (Crew Self for private evidence)

Page	URL	Account
Validation & Usability	https://mitochondria.edocinfo.com/mission/validation	None
Challenge Demo & Submission	https://mitochondria.edocinfo.com/mission/submission	None
Mission Identity & Sign-in	https://mitochondria.edocinfo.com/mission/identity	Owner-provided synthetic account
Mission Workspace · Guidance · Documents	…/mission/experience · …/mission/guidance · …/mission/documents	Crew Self
Domain pages	…/mission/immune-health · …/mission/cardiovascular-health · …/mission/bone-health · …/mission/behavioral-health	Reference public; evidence Crew Self
Alerts · Offline · Records	…/mission/alerts · …/mission/offline · …/mission/records	Crew Self
Mission & Crew Operations	https://mitochondria.edocinfo.com/mission/operations	Mission Operator
Ground & Research Console (Ground Medical Workspace · Research Workspace)	https://mitochondria.edocinfo.com/mission/ground	None to view; Ground Medical or Researcher to act
Demo video · Team	…/competition/demo-video · …/competition/team	None
Source code	https://github.com/computech-gr/astro-vitality-core	None (public repository)

4. Sign-in and Mission Selection

1. Open https://mitochondria.edocinfo.com → **Mission Console → Mission Identity & Sign-in** (`/mission/identity`).
2. Enter the e-mail and password of the synthetic account for the role you are demonstrating and select **Sign in**. A wrong password produces the same generic message for every failure, “Incorrect email or password. Please try again.”, which prevents account enumeration.
3. Confirm **Identity: AUTHENTICATED** and that **Active memberships** is at least 1.
4. Select the membership card for your synthetic mission and role. It becomes **ACTIVE**.
5. For Crew Self, confirm **Live sensor context: MISSION-BOUND**.
6. If no membership appears, the account has no mission access yet — use the alternative path for that role (Section 6).

5. Demonstration Sequence

Times are cumulative and approximate. EVIDENCE is what you can point to on screen. All values are synthetic or absent; no reading is ever invented.

Table 4. Demonstration steps

STEP	TIME	ROLE	SCREEN	ACTION	EXPECTED RESULT	EVIDENCE	FAILURE RECOVERY
A1	0:00–0:45	Public	Home `/`	Read the hero; open About & Open Source → Competition Materials	Five menus and Search; Competition Materials lists the three PDFs and Watch NASA Demo Video	Menu entries	Reload; check HTTPS
A2	0:45–3:00	Public	Daily Health Companion `/mission/companion`	Select each of the five environments; tick two routine items; choose 1 minute (demo) → Start reminders; Show synthetic example and switch series	Environment note changes, data does not; “Participation: 2 / 4 activities”; in-page reminder after one minute; labelled synthetic series D1–D5; section 3 says sign in to see own trends	Notes; counter; synthetic label (E2)	Reminder not shown → keep the tab in front; notifications optional
A3	3:00–4:00	Public (optional phone)	Live Monitoring `/mission/live`	Observe the mission context; optionally Start camera pulse, then Stop	No values without a source (DISCONNECTED). With a phone: Heart rate LIVE; confirmed encrypted writes increase; nothing after Stop	Readiness counters	Skip if no phone (ALT-SENSOR)
A4	4:00–5:30	Public	Health Intelligence `/mission/intelligence` — Research Explorer	Search WBC; clear; filter Potential equivalence; Show 12 more	WBC → 1; filter → 11; 24 rendered of 54; status line: 0 independently approved · 0 operationally activated	Status line	Section missing → hard reload
A5	5:30–6:30	Public	Unified Data Intake `/mission/intake` and Health Report `/mission/health-report`	Read the provenance choice and import limits; open the report page	Synthetic / demo vs Real measurement never mixed; 20 files × 15 MB, on-device; report asks for an authorized crew member — nothing private shown	Gating messages	—
A6	6:30–7:30	Public	Ground & Research Console `/mission/ground` (Health & Intelligence → Ground Medical Workspace)	Read the Research Privacy Workspace and the Ground Medical review panel signed out	“No eligible active membership”; “Sign in with an active Ground Medical mission membership to review synthetic submissions.”; no rows	Neutral status texts (E1)	—
A7	7:30–8:00	Public	Validation `/mission/validation`	Read the criteria and the independent scientific review panel	Scientific validation shown as not yet approved	Status cards	—

STEP	TIME	ROLE	SCREEN	ACTION	EXPECTED RESULT	EVIDENCE	FAILURE RECOVERY
B1	8:00–9:00	Crew Self	Mission Identity `/mission/identity`	Sign in with the owner-issued synthetic Crew Self account; select its card	AUTHENTICATED; ACTIVE card; MISSION-BOUND	Identity summary	No card → ALT-CS
B2	9:00–11:30	Crew Self	Daily Health Companion `/mission/companion` — 3 · Dynamic health trends	Choose a metric (for example heart rate); set 30 days and then one source; scroll to the observation table and "Stored records not charted"; switch to another browser tab for a few seconds and return	Only this crew's observations, each with original unit, time, source and quality; identical repeats charted once; on return private rows disappear, then reappear after re-authorization; checklist, environment and reminders unchanged	Chart/table agreement; not-charted reasons; brief hidden state (E1/E3)	No trends → ALT-TRENDS
B3	11:30–12:00	Crew Self	Ground & Research Console `/mission/ground`	Open the page as Crew Self	No Ground Medical missions listed; aggregate export unavailable — role isolation	Empty selectors	—
B4	12:00–15:00	Ground Medical	Health & Intelligence → Ground Medical Workspace (`/mission/ground`)	Sign in in a separate profile; select the Ground Medical mission → Refresh pending reviews → View values on the FV01-TEST-B batch; switch browser tab and return; then change the mission selector	"8 values · pending_review"; "8 synthetic biomarker value(s) loaded."; table Metric / Value / Unit / Source excerpt; on return "Re-checking Ground Medical authorization…" then the same batch; mission change clears queue and values. Do not record a decision	Eight-row table; status texts (E1 code, E3 signed-in)	No mission → ALT-GM
B5	15:00–16:30	Researcher (or Ground Medical)	Research Workspace (`/mission/ground`, upper panel)	Select the mission and role → Export aggregate	Aggregate-only JSON, or "Research export suppressed: cohort or event-volume threshold not met." — both are correct outcomes	Download or suppression message	ALT-RS
B6	16:30–18:00	Mission Operator (optional)	Mission & Crew Operations `/mission/operations`	Select the synthetic mission; open the demo journey; mark two tracker steps; export the offline report	Tracker counts (session only); local downloads; reserved acceptance mission protected	Downloads	ALT-OP
B7	18:00–20:00	Any	Wrap-up	Complete the evaluator checklist (Section 8.1); optionally open Watch NASA Demo Video	Each checkpoint marked observed, blocked or not applicable	Your notes	—

6. Alternative Paths When a Role Is Not Available

Table 5. Alternatives (role-based access is never bypassed)

ID	Missing access	Alternative demonstration
ALT-CS	No Crew Self account	Show the B3 protocol library; open B4 without a Crew Self context to show the gated, local-only workbench; use the public B5 reference sections
ALT-OP	No Mission Operator account	Open `/mission/operations` to show the "Operator membership required" notice; describe the launchpad from Manual Section 13.3
ALT-GM	No Ground Medical account	Open `/mission/ground`: the panel shows the neutral sign-in status and no rows — the isolation itself is the demonstration. Describe the eight-value review and the session-safety table from Manual Section 15.2
ALT-RS	No Researcher account	Read the Research Privacy Workspace statement; describe suppression rules from Manual Section 15.4
ALT-TRENDS	Crew Self account has no stored observations	Use the labelled synthetic trend demonstration (A2); explain that it is never stored or mixed with crew records
ALT-SENSOR	No phone or permission	Skip physical capture; point to DISCONNECTED cards and the local session context — evidence that nothing is fabricated
ALT-NET	NASA OSDR unavailable	Show the error state and that no substitute data is presented as live

7. Synthetic versus Physical Evidence

Table 6. Evidence types

Evidence	Nature	How to describe it
Scenario fingerprints, demo dataset, offline report, integrated bundle	Synthetic	Software fixtures for demonstration and regression testing
Mission Documents candidates and Cloud batches	Synthetic values from a fictional report	Reviewed synthetic research data, not health records
Camera PPG and motion samples (optional)	Physical device input from the evaluator	Pulse estimate with quality; not ECG; not clinically validated; raw values are not exported
NASA OSDR metadata	Published research metadata (OSD-48 is mouse research)	Research-only, not astronaut data
Ground Medical decision receipt	Database correlation metadata	Research-only decision; not clinical approval
Companion synthetic trend series	Hard-coded illustrative values	SYNTHETIC DEMONSTRATION (E2) — never stored or exported
Companion personal trends; eight-value batch	Synthetic records stored for existing synthetic crew	Real authenticated reads of synthetic data (E1/E3)
Tab-return revalidation for Crew Self	Browser tests with stubbed responses and simulated visibility	E2 for tests; the live behaviour is what you observe in B2
Crew Self synthetic intake, AI extraction, synthetic research AI	Disabled or paused in production	E4 — not part of this demonstration

7.1 What the public path looks like

Unedited captures of the live application before sign-in.

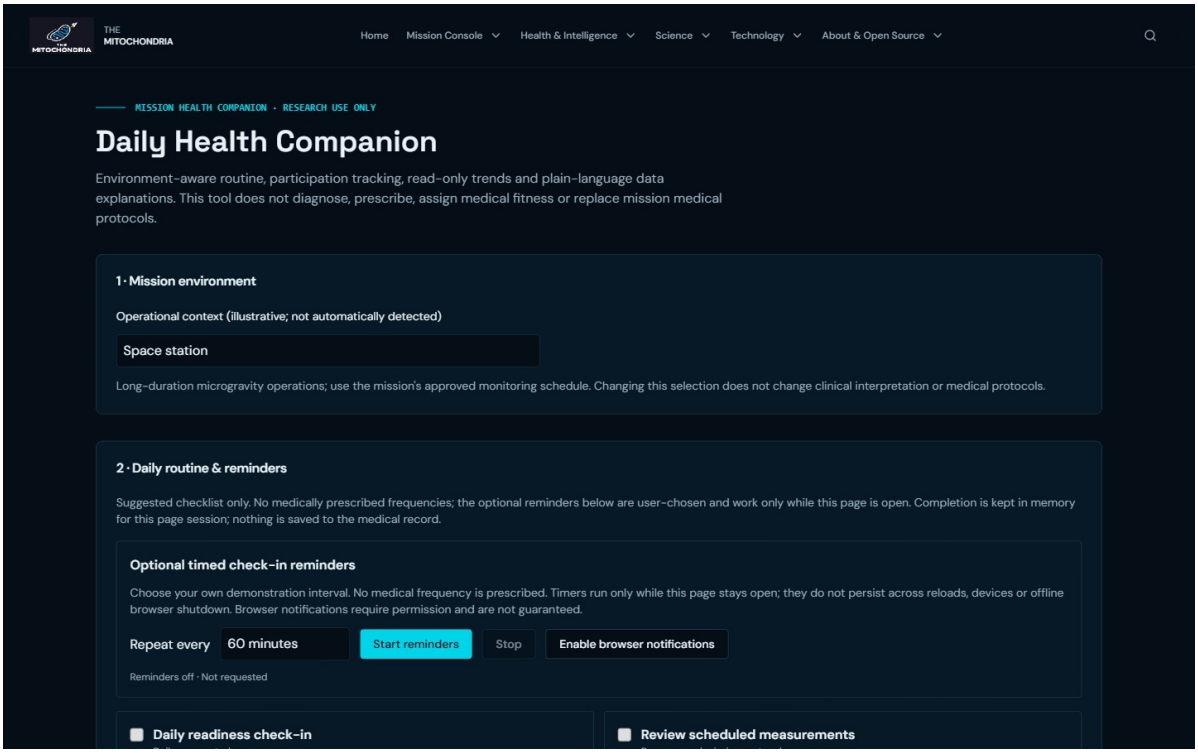


Figure 1. A2 · Daily Health Companion — mission environment and optional reminders (1440 × 900 px)

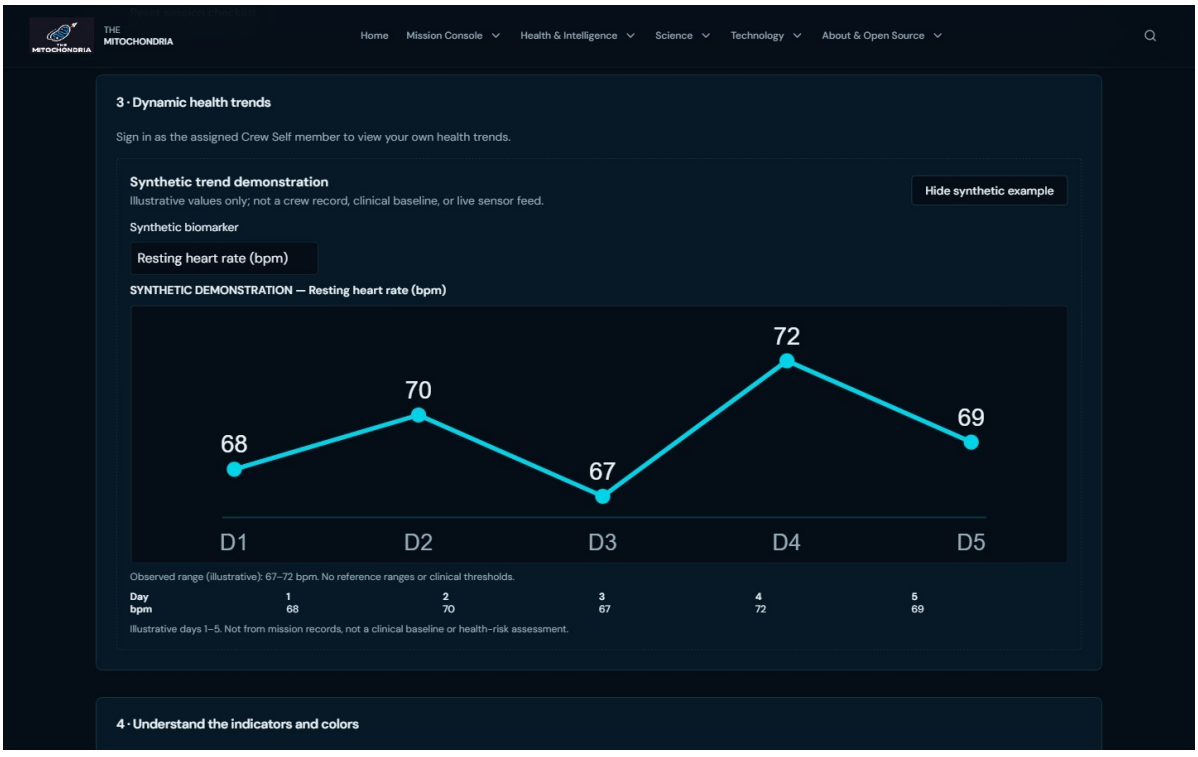
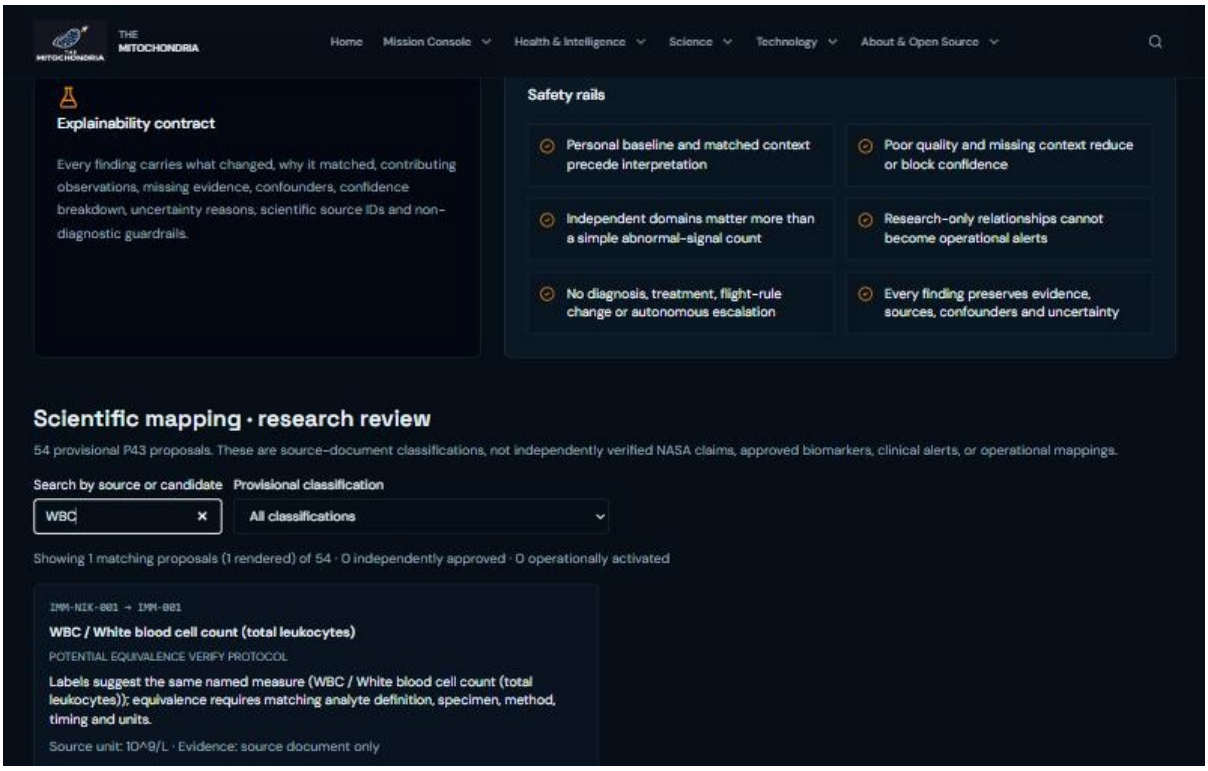


Figure 2. A2 · Synthetic trend demonstration, labelled illustrative



A4 · Research Explorer — search “WBC” returns one provisional proposal

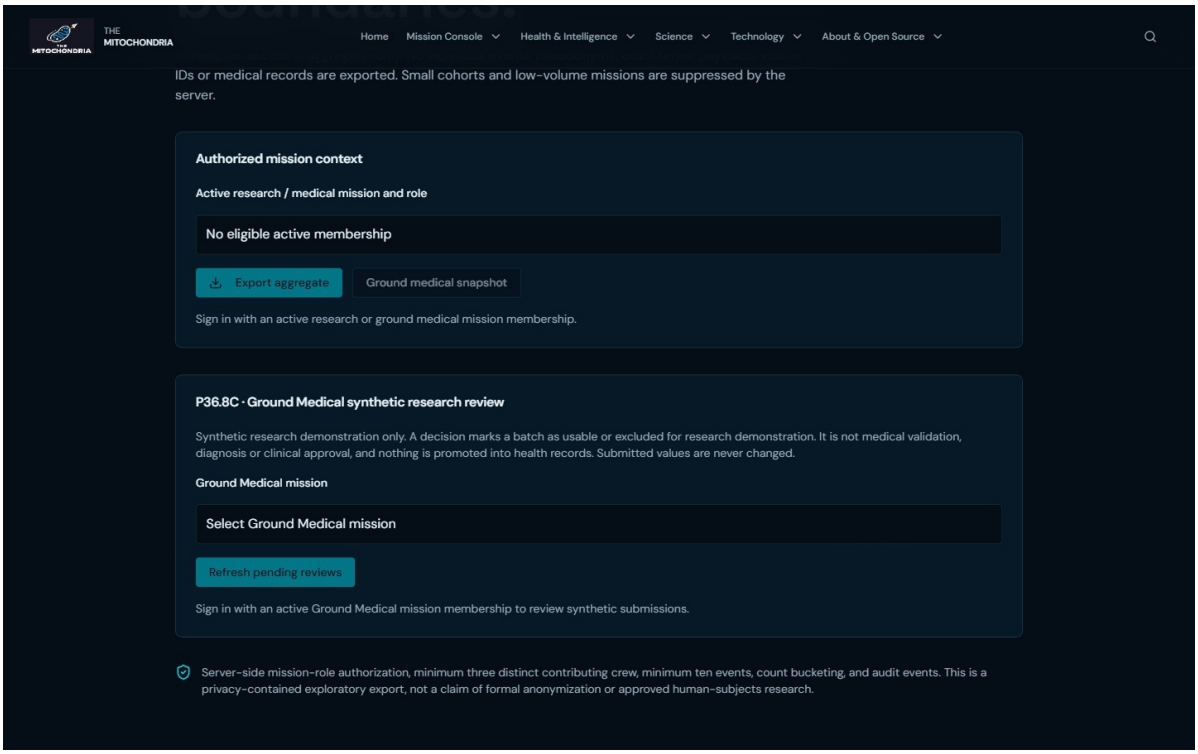


Figure 3. A6 · Ground & Research Console — Research Privacy Workspace and Ground Medical review panel before sign-in

8. Troubleshooting and Evaluator Checklist

Problem	Fix
Sign-in error	Check the account e-mail; the generic message is intentional; try the e-mail magic link if the owner has enabled it
Wrong role shown	Select the correct membership card on /mission/identity
Launchpad controls disabled	The reserved acceptance mission is selected — choose your synthetic mission
Mission Documents finds nothing	Use the synthetic TXT fixture with exact catalogue names and units
Live identity shows LOCAL FALLBACK while signed in	Select Crew Self, then return focus to the tab (identity resolves on focus)
Companion trends briefly disappear after switching tabs	Expected: private data is hidden while authorization is re-checked; it returns if still authorized. “Retry authorization” appears after a network error
Ground Medical panel shows “Re-checking Ground Medical authorization…”	Expected after a tab return or sign-in event; wait a moment. If rows do not return, the membership is no longer active
Ground Medical batch cleared after changing the mission	Expected: mission switches clear private rows; select Refresh pending reviews again
Reminder did not fire	Reminders run only while the Companion page stays open and in front
Camera fails	Allow permission; close other camera apps; use HTTPS — or skip (optional step)

8.1 Evaluator checklist

Table 7. Checklist

#	Checkpoint	Observed / Blocked / N/A
1	Public pages load and research-prototype disclaimers are visible	
2	No invented values when no source is connected	
3	Companion: environment changes the note but not the data; participation is not a health score	
4	Synthetic trend series is clearly labelled and separate from crew data	
5	Research Explorer: WBC → 1, potential equivalences → 11, 0 approved and 0 activated	
6	Crew Self sees only own observations, with unit, time, source and quality	
7	Private Companion rows hide on tab return and reappear only after re-authorization	
8	Ground Medical: eight synthetic values shown read-only; no decision recorded	
9	Ground Medical batch survives a tab switch for the same user and mission, and clears on mission change	
10	Researcher export is aggregate-only or suppressed	
11	Crew Self, Operator and Researcher see no Ground Medical queue	
12	No step bypassed role-based access; no credentials shown on screen	

9. Research Status at a Glance

Table 8. Status labels used across all four deliverables

Status	What it covers
OPERATIONAL / FIELD-VERIFIED	Identity and roles, mission operations and audit, live capture (camera and motion verified on a physical phone), encrypted offline store and sync, Mission Documents, Unified Data Intake, Health History Report, Daily Health Companion and personal trends, synthetic Cloud batches, Ground Medical review with session safety, Research Privacy Workspace
SYNTHETIC DEMONSTRATION	Scenarios, demo dataset, offline report, integrated bundle, synthetic laboratory reports, Companion synthetic trend series
RESEARCH-ONLY	Health intelligence patterns, the Research Explorer of 54 provisional proposals (0 approved, 0 activated), domain evidence summaries, handbooks, draft catalogues, NASA OSDR metadata
VALIDATION BOUNDARY	Owner-evidence gates P3663, P3664 and P20 (Medical v3 Release Gate blocked by design); signed-in revocation acceptance; real-device offline OCR in airplane mode; two-account cross-mission Crew Self isolation; independent scientific review; live Ground Medical review acceptance; physical-phone notification test
OUT OF SCOPE / DISABLED	Persisted personal baselines, native Health Connect / HealthKit hosts, habitat telemetry feed, governed administrator role; Crew Self synthetic intake, AI extraction assistance and synthetic research AI (disabled or paused)

- Not NASA-approved, not clinically validated, not flight-qualified; synthetic data only.
- Real-device evidence covers one phone (camera pulse estimate and motion); the Bluetooth path awaits a hardware test.
- Scientific content is research-only: Nikolas' immune and behavioural handbooks are integrated as 216 source records and 54 provisional proposals, all awaiting independent scientific review.
- Two-account cross-mission Crew Self isolation and airplane-mode offline OCR on a physical device have not been demonstrated.