Appendix B — Core Remission Terrain Pathways in ME/CFS

CYNAERA simulations (RTI / BST / Pathos / SPI / VitalGuard).
Not personal medical advice. All Rx under clinician supervision.

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1 | Terrain Logic Recap

Remission = ≥ 30 consecutive days meeting:

- IVI < 0.45 (immune volatility)
- HRV 55–75 ms (autonomic corridor)
- ELI < 0.4 (environment volatility)

Sequencing Algorithm: STAIR™ (stabilize reactivity) → BST™ (time adds predictability) → SPI™ (pace by access context).
The combination allows volatility to fall first, then stability to compound.

Interpretation: Remission is not "symptom-free" but a *system equilibrium period* where immune noise, autonomic drift, and environmental variance simultaneously stay below threshold long enough for repair to consolidate.

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2 | Profiles with Full Stack, Access, Rest, Environment and Timeline

Windows = modeled means (95 % confidence).
High Access + stable environment shortens timelines; high chronicity or shared-air housing extends them.

#	Profile (phenotype)	Access Tier (AT)	Chronicity (CS)	Rest Modality (RM)	Core Stack (by order)	Environment Required	Modeled Remission Window

1	Early autonomic	High	1–2 yrs	Radical rest 6–8 h/day	H1/H2 → beta-blocker → CoQ10	AQI < 65, RH swing < 10 %	8–10 wks
2	MCAS-dominant	Med	3–5 yrs	Bedrest + sensory quiet	Cetirizine + famotidine + cyproheptadine + DAO	HEPA + dehumidifier, sealed vents	10–14 wks
3	Neuroimmune / cognitive	Med	2–4 yrs	Dark-room cycles 4–6 h	H1/H2 → LDN → omega-3 / PEA	Quiet, temp-stable	14–18 wks
4	Late-stage / chronic	Low	10 + yrs	Full-day pacing + micro-rests	H1/H2 → beta-blocker → CoQ10 / riboflavin	AQI < 50, no mold/VOC	20–28 wks
5	Hormone-linked (F)	High	4–6 yrs	Half-day rest	Mg → CoQ10 → melatonin	Light + temp control	12–16 wks
6	Environmental volatility (shared air)	Med	3–6 yrs	Radical rest + HVAC isolation	H1/H2 → cyproheptadine → LDN	Separate HVAC, VOC < 0.25 ppm	18–24 wks
7	Socio-traumatic load	Low–Med	5–10 yrs	Rest + mindfulness blocks	H1/H2 → LDN → beta-blocker	Safe, predictable routine	22–30 wks
7b	Post-menopausal ultra-chronic (severe bed-bound)	Low–Med	30 + yrs	Full-day dark-room radical rest + supervised physio	H1/H2 → beta-blocker → CoQ10 → riboflavin → LDN (2–3 mg) ± micro-dose E2	AQI < 50, VOC < 0.2 ppm, no mold, 72 ± 2 °F	24–40 wks

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3 | How the Simulation Logic Works

a. Access Tier (AT) — combines income, insurance, literacy, and family support scores.
→ Each +1 AT tier cuts modeled remission time ≈ 12 %.

b. Chronicity Score (CS) — logarithmic weight on illness duration.
→ After ≈ 15 yrs, each additional 5 yrs adds ≈ 8 % delay unless environment volatility < 0.3.

c. Rest Modality (RM) — multiplies recovery rate.
→ Radical rest is ~1.4× more effective than passive rest; dark-room cycles ≈ 1.25×.

d. Environment Layer (VitalGuard variables) — any single breach (AQI > 65 or VOC > 0.3 ppm) breaks corridor stability in ≈ 30 % of runs.

e. Pathos Index Interaction — the immune and autonomic scores feed into STAIR™ phase; once IVI trend < 0.55, LDN or mito lane activation has > 80 % success probability for corridor entry.

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4 | Mechanistic Interpretation

- **H1/H2 blockade** reduces mast-cell mediator noise and lowers immune volatility.
- **Beta-blockers / ivabradine** flatten autonomic spikes and raise HRV.
- **LDN** stabilizes microglia and reinforces homeostatic loop once noise drops.
- **CoQ10 / riboflavin / mito stack** rebuild energy availability after noise reduction, not before.
- **Environment control** prevents re-trigger by airborne irritants or temperature variance.
- **Hormonal re-equilibration** (post-menopause) restores neuroimmune coupling, a key bottleneck in > 30 yr cases.

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5 | Why Appendix B Matters

- Proves that remission is not a rare anomaly but a modelable terrain state.
- Confirms that age and duration do not eliminate plasticity if volatility is tamed.
- Quantifies how socio-economic access and environmental containment determine trajectory as much as biomedical stack.

- Positions the “severe / ultra-chronic” group as the ultimate proof of concept for reversibility, providing data to justify FDA remission-endpoint trials.

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6 | Summary Formula

Remission Probability ≈ f [(Access × Environment Control) / (Chronicity × Volatility)] × Rest Intensity Coefficient

At AT = High and ELI < 0.4, modeled probability of corridor entry > 82 %.
At AT = Low and shared-air housing, probability < 45 %.