CERNAL
COMPILER-LIKE ENGINE FOR RNA LOGIC

Feedback Protocol

Overview.

Linked profile	CERNAL-DP-0007
Design / circuit ID	CERNAL-DSN-0007-A
Date	____ / ____ / _____
Design partner	Mammalian gene-therapy developer (representative example)
CERNAL lead	Customer-success lead (same as intake)

Purpose. This protocol is agreed in Stage 3, at delivery of the Design Report. It defines exactly how the partner will build and test the circuit, which results they will return, and in what form - so the feedback is comparable across partners and can be used to calibrate and improve CERNAL. Sections 1–5 are agreed with the partner; Section 6 states how CERNAL uses the data.

1 Build - circuit construction

Assembly	Synthesis / cloning of the delivered sequences - partner's standard workflow
Delivery	Transient transfection - Lipofectamine 3000 (per Customer Profile)
Required controls	Always-ON (constitutive) · Always-OFF (no trigger) · Non-cognate trigger

2 Test - experiment design

Assay	Dual-fluorescent reporter · FACS readout
Conditions	Target state vs. control state · cognate vs. non-cognate trigger
Replicates	3 biological replicates per condition

3 Metrics to report

Activation (ON / OFF)	Fold change in reporter signal - target/cognate state vs. OFF state (MFI ratio)
Leakage	Background reporter signal in the OFF (no-trigger) state
Specificity	Target-state vs. control-state activation; cognate vs. non-cognate trigger
Viability	Cell health under the circuit - especially where a payload is used
Partner metric	The partner's own success measure for their application

4 Data format & delivery

Processed	Per-condition means ± SD (CSV)
Raw	FACS files (FCS) + representative plots

Channel	Shared securely with the CERNAL team

5 Timing & checkpoints

Interim check-in	~3 weeks after delivery - build status, early signal
Full results	Within the build-and-test window (~3–8 weeks after delivery)

6 How CERNAL uses this

Calibration	Compare predicted vs. measured behavior for this design, and tune the engine
Platform	Feeds the gate library (per cell type) and the design heuristics that improve every next design
Confidentiality	Partner data handled per agreement; generalizable learning is retained by CERNAL

CERNAL lead: _____ **Design partner:** _____

Representative example for illustration. CERNAL - compiler-like engine for RNA logic.