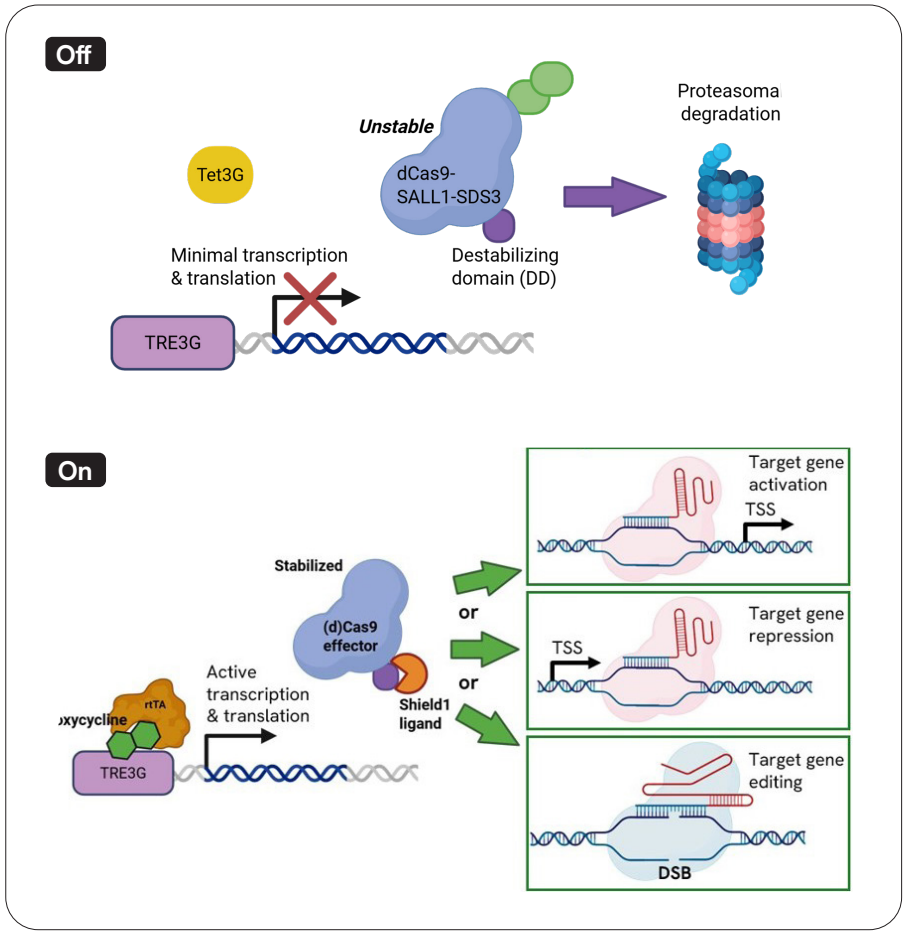
Control CRISPR gene editing and modulation.

Dharmacon™ Strict-R™ dual regulated inducible lentiviral system

Dharmacon™ Strict-R™ dual regulated inducible lentiviral system for CRISPR gene editing and modulation

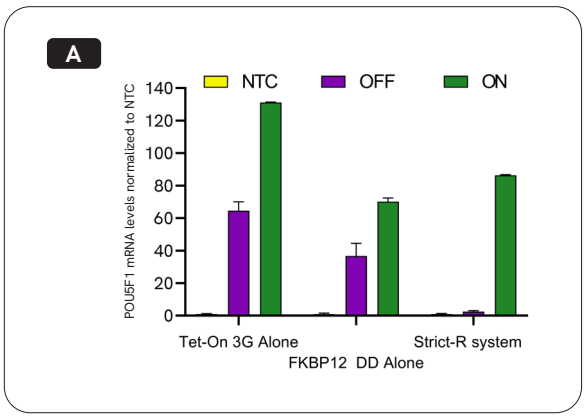
The Dharmacon™ Strict-R™ Inducible CRISPR System delivers precise, temporal control of CRISPR knockout (CRISPRko), CRISPR interference (CRISPRi), and CRISPR activation (CRISPRa) with a dual-layer regulatory design engineered for minimal background activity.

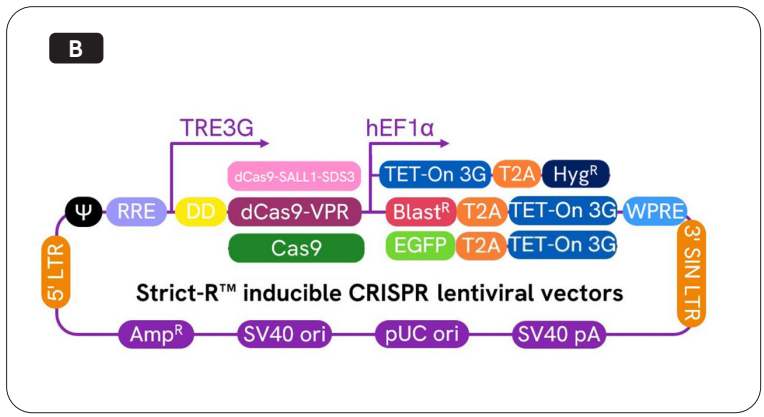
By integrating TRE3G-controlled transcription with a FKBP12 derived destabilizing domain for post-translational control, the Strict-R platform ensures the transgene remains off when not induced and fully active only in the presence of both doxycycline and Shield1 activators.



Transcriptional and post-translational control with the Dharmacon™ Strict-R™ Inducible CRISPR Lentiviral System

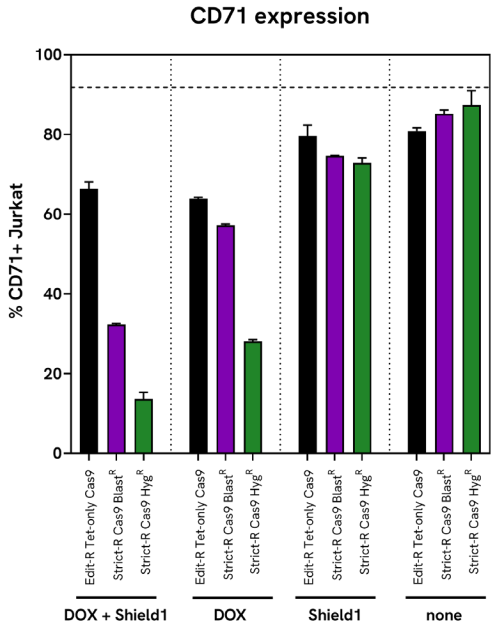
The Strict-R inducible dual-regulation system maximizes biologically relevant transgene induction





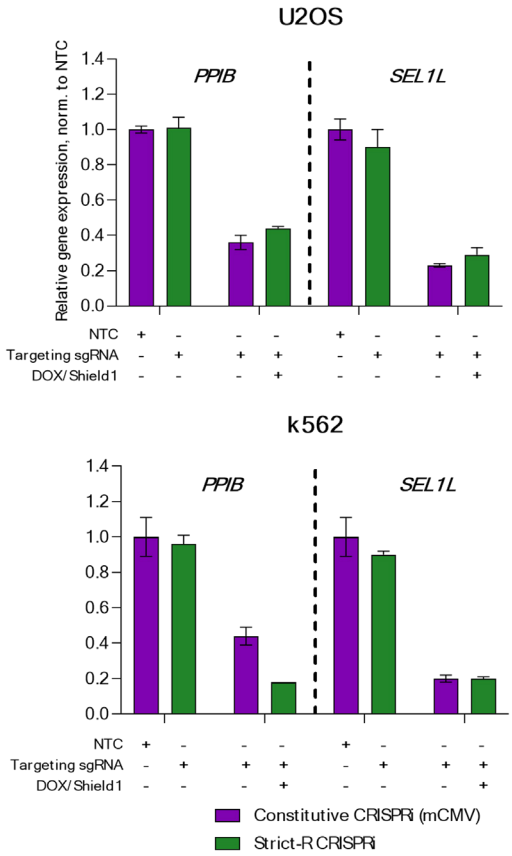
A. *K562 cells were transfected with Inducible CRISPRa systems based on TRE3G alone, FKBP12 degron alone, or the combined TRE3G + FKBP12 system (Strict-R) along with CRISPRmod™ sgRNA targeting the POU5F1 gene for activation.* ***B.*** *Vector map of the Dharmacon Strict-R Inducible CRISPR Lentiviral System. The system is available for the Edit-R™ CRISPR Knockout system, and CRISPRmod CRISPRa or CRISPRi system for gene modulation.*

CRISPRko – Strict-R inducible Cas9 system out-performs inducible Cas9 systems with TRE3G technology alone



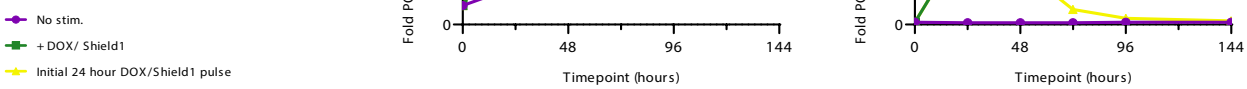
Jurkat cells expressing the Edit-R Inducible Cas9 (hEF1a-BlastR) TRE3G only system or Strict-R Inducible Cas9 Lentiviral system were transduced with Edit-R lentiviral sgRNA targeting CD28, CD71, or non-targeting controls. After selection cells were stimulated with 500 ng/mL doxycycline and 500 nM Shield1, 500 ng/mL doxcycyline only, 500 nM Shield1 only, or none for 6 days. On day 6 cells were analyzed for protein knockout by flow cytometry.

CRISPRi - Robust inducible transcriptional repression and minimal leakiness across cell lines and targets



U2OS and K562 cells expressing either the Strict-R Inducible CRISPRi Lentiviral System or constitutive CRISPRi (dCas9-SALL1-SDS3, hEF1□, mCMV promoters) were transduced with CRISPRmod™ sgRNAs targeting PPIB, SEL1L, or non-targeting control. After selection cells were induced with doxycycline (0.5 µg/mL) and Shield1 (500 nM) for 48 hours followed by mRNA quantification by RT-qPCR

CRISPRa - Strict-R inducible system allows robust and reversible inducible gene activation with superior background control over TRE3G alone



K562 cells expressing either Tet-On 3G inducible dCas9-VPR or the Strict-R Inducible CRISPRa Lentiviral System (dCas9-VPR) were transduced with CRISPRmod sgRNAs targeting POU5F1 or non-targeting control. After selection cells were induced with doxycycline (0.5 µg/mL) and Shield1 (500 nM) for 48 hours followed by mRNA quantification by RT-qPCR across multiple timepoints out to 144 hrs.

The Dharmacon Strict-R Inducible CRISPR System delivers unmatched control through its dual transgene regulation, nearly eliminating leaky expression and uncontrolled knockout, and enabling truly reversible gene modulation, a level of control no other inducible CRISPR platform can match.

Feature	Benefit
Dual-control (Tet-On 3G + FKBP12-degron)	Regulation at the transcriptional and post-translational stage
Reversible induction	Turn gene activity ON/OFF with activator small molecules
Dose-responsive induction	Tune activity or level of knockout with activator dose
Ultra-low background	Clearer phenotypes with minimized off-state effects
Unified system (CRISPRa/i/ko)	Same workflow across all Dharmacon CRISPR modalities
Ready-to-use lentiviral particles	Easy delivery into primary and hard-to-transfect cells

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