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Datasheet for XGAL-0100

X-Gal (Beta-Galactosidase Substrate)

Overview

Description:	X-Gal (Beta-Galactosidase Substrate) - XGAL-0100
Item No.:	XGAL-0100
Size:	100 mg
Applications:	Gene Editing, IHC

Product Details

Background:	X-Gal (5-Bromo-4-chloro-3-indolyl β-D-galactopyranoside) is a chromogenic substrate for the β-galactosidase enzyme, commonly used in molecular biology for blue-white screening of recombinant bacterial colonies and other reporter assays. When hydrolyzed by β-galactosidase, X-Gal produces an insoluble blue precipitate.
Synonyms:	5-bromo-4-chloro-3-indolyl-β-D-galactopyranoside

Target Details

Purity/Specificity:	Purity: >99.0% (enzymatic), Melting Range: 232° to 234° C, Solubility: 2% in DMF, Molecular Weight: 408.64, Grade: Ultrapure

Application Details

Tested Applications:	Gene Editing
Suggested Applications:	IHC (Based on references)
ELISA:	1X
IHC:	1X
WB:	1X
Other:	Use by 30APR2023

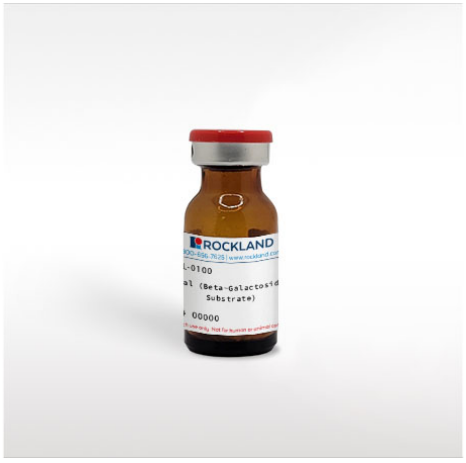
Formulation

Physical State:	Solid
Concentration:	Neat

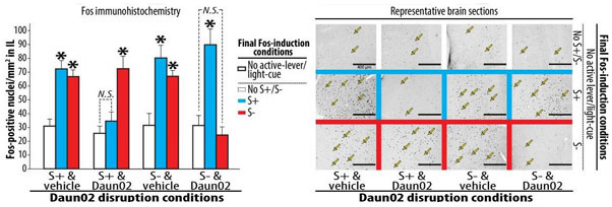
Shipping & Handling

Shipping Condition:	Dry Ice
Storage Condition:	Store container at -20° C prior to opening. Protect from moisture and light. No special shipping conditions or precautions are required.
Expiration:	Expiration date is one (1) year from date of receipt.

Images

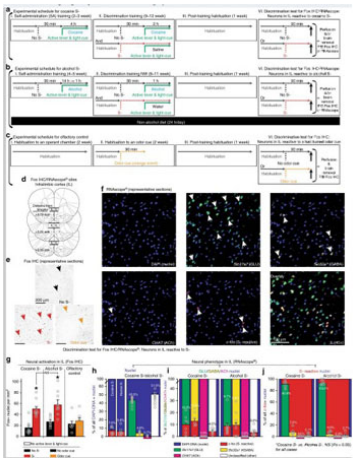


Bottle
X-Gal (Beta-Galactosidase Substrate)



Immunohistochemistry

Neural ensembles in IL reactive to S+ or S- following the activity-targeted disruption by Daun02. Each of the four experimental groups, prepared and used for the Daun02 disruption and Post-disruption tests I, was further randomly divided into three groups defined by the type of final Fos induction condition (S+, S- or No S+/S-). The rats were exposed to S+, S- or No S+/S- (control), then deeply anesthetized and euthanized. Brains were collected, sectioned (40 µm), processed for Fos immunohistochemistry. Fos-positive nuclei from sampling areas around the IL microinjection sites were quantified double-blindly. X-gal (p/n XGAL-0100). The average numbers of Fos-positive nuclei per mm2 were calculated for each rat and used for statistical analyses. Yellow arrows represent typical Fos-positive nuclei. Group means of these average numbers (+SEM) are depicted. N = 7–9, each. *p<0.05–0.01 (vs. No active lever/light-cue). Figure 3. PMID: 27938664.



Immunohistochemistry

Omission cue-induced suppression (OCIS) procedures for localization and phenotypic characterization of omission cue-reactive neurons in IL. All data are mean and SEM. Gray open circles on bar charts depict individual data-points. a, b, c Timeline and schedule. d Target sites. e, f Representative sections. g Effects of cocaine S-, alcohol S-, and well-habituated odor on neural activation in IL as indicated by Fos immunohistochemistry. n = 10,9,8,9,6,6. Two-way between-subjects ANOVA: Training ($F(2,42) = 4.81$, $P < 0.05$) and Cue-Test ($F(1,42) = 28.67$, $P < 0.001$) main effects, and Training x Cue-Test interaction ($F(2,42) = 3.77$, $P < 0.05$). *$P < 0.001$ vs. No S-. Tuckey HSD test. h, i, j Neural phenotypes in IL reactive to cocaine or alcohol S- as indicated by in situ hybridization via 4-plex RNAscope® targeting c-fos, Slc17a7, Slc32a1, and CHAT, as markers for “S- reactive”, “glutamatergic (GLU)”, “GABAergic (GABA)”, and “cholinergic (ACh)” nuclei. Each nucleus was identified by DAPI. For statistical analyses, total numbers of nuclei per mm2 that satisfied each phenotypic criterion were used. For graphic representations, percentages of each phenotype within a specific “parent” phenotype were used. h Percentages of different phenotypes within all DAPI-positive nuclei. n = 7,8,15. Individual data-points are not overlaid on the right panel for clarity because n = 15. For this panel, data from rats tested for cocaine S- and alcohol S- were pooled to represent the overall percentages of different phenotypes independent of neural activity. Two-way mixed ANOVA: Phenotype ($F(4,52) = 532.79$, $P < 0.001$), but not Group ($F(1,13) = 4.05$, NS) or Group x Phenotype interaction ($F(4,52) = 0.34$, NS). n = 7,8. i Percentages of S-reactive nuclei within different phenotypes. Two-way mixed ANOVA: Phenotype ($F(3,39) = 38.62$, $P < 0.001$), but not Group ($F(1,13) = 2.5$, NS) or Group x Phenotype interaction ($F(3,39) = 1.74$, NS). j Percentages of different neural phenotypes within S- reactive nuclei. Two-way mixed ANOVA: Phenotype ($F(3,39) = 27.77$, $P < 0.001$), but not Group ($F(1,13) = 2.20$, NS) or Group x Phenotype interaction ($F(3,39) = 2.04$, NS). n = 7,8. X-gal (5-bromo-4-chloro-3-indolyl β-d-galactopyranoside) (p/n XGAL-0100). Fig 3. PMID: 31477694.

References

- Laque A et al. Anti-relapse neurons in the infralimbic cortex of rats drive relapse-suppression by drug omission cues. *Nat Commun.* (2019)
- Suto, N et al. Distinct memory engrams in the infralimbic cortex of rats control opposing environmental actions on a learned behavior. *ELife* (2016)

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