targetingsystems

1453 N. Cuyamaca St, El Cajon, CA 92020
Phone: (866)-620 4018, (619)-562-1518
Fax: (619)-562-1326 • info@targetingsystems.net
www.targetingsystems.com

NEW! ***UltraBrite ™ Gaussia luciferase assay reagent*** (***Ultrabrite ™*** GAR) ***an improved ultrasensitive assay reagent with a stable luminescent signal (Catalog # GAR-ULTRA)***

Our brightest and most stable version specially developed for high throughput applications

Catalog no.	Size	Description	Price
GAR-ULTRA 1	1000 assays	***Ultrabrite ™*** Gaussia Luciferase Assay Reagent	$500

About Gaussia Luciferase:

Gaussia Luciferase (GLuc) catalyzes the oxidation of the substrate coelenterazine in a reaction that produces light by a reaction which does not require ATP, and has considerable advantages over other luminescent reporter genes such as secretability and a much brighter signal intensity in addition to excellent stability of the bioluminescent signal when assaying with our Gaussia luciferase assay reagents.

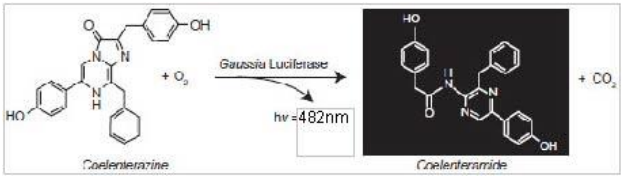
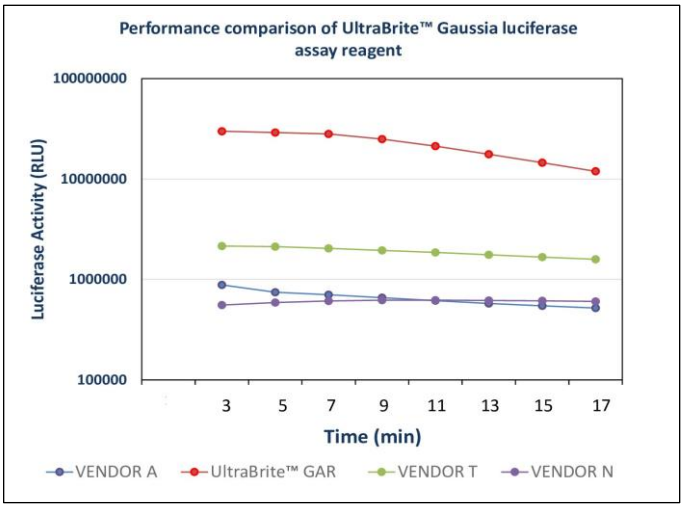


Figure 1: Photo-oxidation of coelenterazine catalyzed by Gaussia luciferase

Advantages:

- *Enhances Gaussia luciferase (GLuc) signal by approx. 20X). Gaussia luciferase is 1000X brighter than firefly and renilla luciferase. The UltraBrite GAR reagent further increases GLuc signal intensity by 20-fold*
- *Higher SNR (signal to noise ratio).*): The *Ultrabrite ™* GAR reagent has a significantly lower background. In High-Throughput Screening (HTS), a high SNR is crucial for accurate and reliable data for identification of true drug leads
- *Excellent Signal Stability*
- *Cost-effective: Better performance compared to other commercial reagents (see Fig below) and the GAR-2B reagent offered by Targeting Systems*
- *Rapid Assay- Short integration times (1-2 sec per samples) enable faster measurements and save time*
- *GLuc is a stable reporter. Samples of supernatant media or cell lysates can at stored at -20º C for months without loss of luciferase activity and assayed later.,*



Ultrabrite ™ Gaussia Luciferase Assay Reagent is an improved assay reagent which would be particularly useful in screening applications due to high sensitivity. The bioluminescent signal using the Ultrabrite GAR reagent is significantly brighter than that observed with our standard GAR-2B reagent or other commercial Gaussia luciferase assay reagents (see Figure 2) when assaying the commonly used Gluc double mutant (M2). The ***Ultrabrite ™*** Gaussia Luciferase Assay Reagent is amenable to HTS applications. The high assay sensitivity makes it particularly useful when working with applications where high signal intensity is desirable (e.g. working with weak promoters) as even when using the Native Gluc reporter the sensitivity is 10X higher than that obtained with GAR-2 or other

targetingsystems

1453 N. Cuyamaca St, El Cajon, CA 92020
Phone: (866)-620 4018, (619)-562-1518
Fax: (619)-562-1326 • info@targetingsystems.net
www.targetingsystems.com

Figure 2: Performance comparison of the ***UltraBrite ™ GAR reagent with GLuc assay reagents form other vendors***

G

A

erature prior to assay

1. Dilute the concentrated coelenterazine (GAR substrate), provided as a 100X formulation to 1X using the GAR assay dilution buffer. For example, to prepare 5 ml of assay reagent dilute 50 ul of 100 X coelenterazine with 4.95 ml of GAR assay dilution buffer.
2. Pipette 20µl of Gaussia Luciferase Sample into assay dish or luminometer tube
3. Add 50 µl of Gaussia luciferase assay reagent (prepared as described in step 1). Mix well
4. Assay in luminometer, integrate for 10 seconds (or as desired)

Note: An optional stabilizer buffer is included for stabilization of Native Gluc activity but this will typically lower the activity to a level marginally higher that that obtained with Native Gluc while maintaining signal stability

Custom Reagents: We can provide custom formulations to fit your HTS application. Call our tech support team at 1-866-620-4018 or email us info@targetingsystems.net
Please check out our website www.targetingsystems.net for novel luciferase – based multiplexed assays which enable analysis of up to four promoter activities in the same group of transfected cells.

REFERENCES:
Selected references citing use of Gaussia luciferase assay reagents form Targeting Systems

1. Abudayyeh OO et al (2019) A cytosine deaminase for programmable single-base RNA editing. Science. 2019 Jul 26;365(6451):382-
2. Cheng G and Davis RE (2007). An improved and secreted luciferase reporter for schistosomes. Molecular & Biochemical Parasitology 155 (2007) 167–171.
3. Jinming Yang, Snjezana Zaja-Milatovic, Yee-Mon Thu, Francis Lee, Richard Smykla, and Ann Richmond (2009) Molecular determinants of melanoma malignancy: selecting targets for improved efficacy of chemotherapy. Mol. Cancer Ther., Mar 2009; 8: 636 - 647.
This cites GAR-2 reagent and GLuc lentivirus
4. Tannous BA (2009) Gaussia luciferase reporter assay for monitoring biological processes in culture and in vivo. Nature Protocols 4, - 582 - 591 (2009)
pCMV-GLuc
5. Wurdinger T, Badr C and Tannous B (2008) Gaussia luciferase blood level as an index of cell growth and proliferation
6. Wurdinger T, Badr C, Pike L, de Kline R, Weissleder R, Breakerfield X, and Tannous B (2008) A secreted luciferase for ex vivo monitoring of in vivo processes. Nature Methods - 5, 171 - 173
7. Drug Discovery Today: Technologies Volume 1, Issue 4, December 2004, Pages 357-364
8. Nicola Ternette,1 Daniela Stefanou,1 Seraphin Kuate,1 Klaus Überla,1 and Thomas Grunwald (2007) Expression of RNA virus proteins by RNA polymerase II dependent expression plasmids is hindered at multiple steps. Virol J. 2007; 4: 51.
pCMV-GLuc
9. Guofeng Chenga,1, Leah Cohenb,1, Claudette Mikhli b, Marzena Jankowska-Anyszka c (2007) In vivo translation and stability of trans-spliced mRNAs in nematode embryos.
10. Bakhos A. Tannous (2011) Gaussia luciferase reporter assay for monitoring of biological processes in culture and in vivo. Molecular Therapy (2011) 19 6, 1090–1096. doi:10.1038/mt.2011.17
Lentivirus vector expressing Gluc, GAR-2 reagent

1453 N. Cuyamaca St, El Cajon, CA 92020
Phone: (866)-620 4018, (619)-562-1518
Fax: (619)-562-1326 • info@targetingsystems.net
www.targetingsystems.com

11. Johanna M Niers, Mariam Kerami, Lisa Pike, Grant Lewandrowski and Bakhos A Tannous (2011) Multimodal In Vivo Imaging and Blood Monitoring of Intrinsic and Extrinsic Apoptosis. J Biol Chem. 2011 June 10; 286(23): 20637–20647.
Published online 2011 April 13. doi: 10.1074/jbc.M111.227082
GFP-DEVD-ssGluc fusion, pCMV-Gluc, pCMV mammalian expression plasmid, GAR-2 reagent
12. James Robert Krycer and Andrew John Brown (2009) Cross-talk between the Androgen Receptor and the Liver X Receptor. Implications For Cholesterol Homeostasis. Nature Protocols 4, 582–591 (1 April 2009) doi:10.1038/nprot.2009.28
Gaussia luciferase assay reagent
13. Thomas Wurdinger, Christian Badr, Bakhos Tannous (2008) Gaussia luciferase blood level as an index of cell growth and proliferation. Tannous Lab (Massachusetts General Hospital and Harvard Medical School. Protocol Exchange (2008) doi:10.1038/nprot.2008.26
14. Wei Zhang, Fuchun Zhou, Whitney Greene, and Shou-Jiang Gao (2010) Rhesus Rhadinovirus Infection of Rhesus Fibroblasts Occurs through Clathrin-Mediated Endocytosis J. Virol., Nov 2010; 84: 11709 - 11717.
Used GLuc vectors and assay reagents
15. James Robert Krycer and Andrew John Brown (2011) Cross-talk between the Androgen Receptor and the Liver X Receptor: Implications for Cholesterol Homeostasis.
J. Biol. Chem., Jun 2011; 286: 20637 - 20647.
Gaussia luciferase assay reagent
16. Batsukh Dorjbal, David Derse, Patricia Lloyd, Ferri Soheilian, Kunio Nagashima, and Gisela Heidecker (2011) The Role of ITCH Protein in Human T-cell Leukemia Virus Type 1 Release
J. Biol. Chem., Sep 2011; 286: 31092 – 31104.
17. Deepti Malhotra, Rajesh Thimmulappa, Neeraj Vij, Ana Navas-Acien, Thomas Sussan, Salim Merali, Li Zhang, Steven G. Kelsen, Allen Myers, Robert Wise, Rubin Tuder, and Shyam Biswal (2009) Heightened Endoplasmic Reticulum Stress in the Lungs of Patients with Chronic Obstructive Pulmonary Disease: The Role of Nrf2-Regulated Proteasomal Activity
Am. J. Respir. Crit. Care Med., Dec 2009; 180: 1196 – 12s07.
pCMV-Gluc
18. Maik Blissenbach, Bastian Grewe, Bianca Hoffmann, Sabine Brandt, and Klaus Überla (2010) Nuclear RNA Export and Packaging Functions of HIV-1 Rev Revisited
J. Virol., Jul 2010; 84: 6598 - 6604.
pCMV-Gluc
19. Bastian Grewe, Bianca Hoffmann, Inga Ohs, Maik Blissenbach, Sabine Brandt, Bettina Tippler, Thomas Grunwald, and Klaus Überla (2012) Cytoplasmic Utilization of Human Immunodeficiency Virus Type 1 Genomic RNA Is Not Dependent on a Nuclear Interaction with Gag
J. Virol., Mar 2012; 86: 2990 - 3002.
20. Christian E. Badr, Thomas Wurdinger, Jonas Nilsson, Johanna M. Niers, Michael Whalen, Alexei Degterev, and Bakhos A. Tannous (2011) Lanatoside C sensitizes glioblastoma cells to tumor necrosis factor–related apoptosis-inducing ligand and induces an alternative cell death pathway
Neuro Oncology, Nov 2011; 13: 1213 - 1224.
21. Bovenberg, M Sarah S et al. “Multiplex blood reporters for simultaneous monitoring of cellular processes.” *Analytical chemistry* vol. 85,21 (2013): 10205-10.
22. Charles, J., Fuchs, J., Hefter, M. *et al.* Monitoring the dynamics of clonal tumour evolution *in vivo* using secreted luciferases. *Nat Commun* **5,** 3981 (2014).
23.Wang, Eric T et al. “Transcriptome-wide regulation of pre-mRNA splicing and mRNA localization by muscle blind proteins.” *Cell* vol. 150,4 (2012): 710-24.
24. Kulak, O., & Lum, L. (2013). A multiplexed luciferase-based screening platform for interrogating cancer-associated signal transduction in cultured cells. *Journal of visualized experiments. JoVE*, (77), e50369