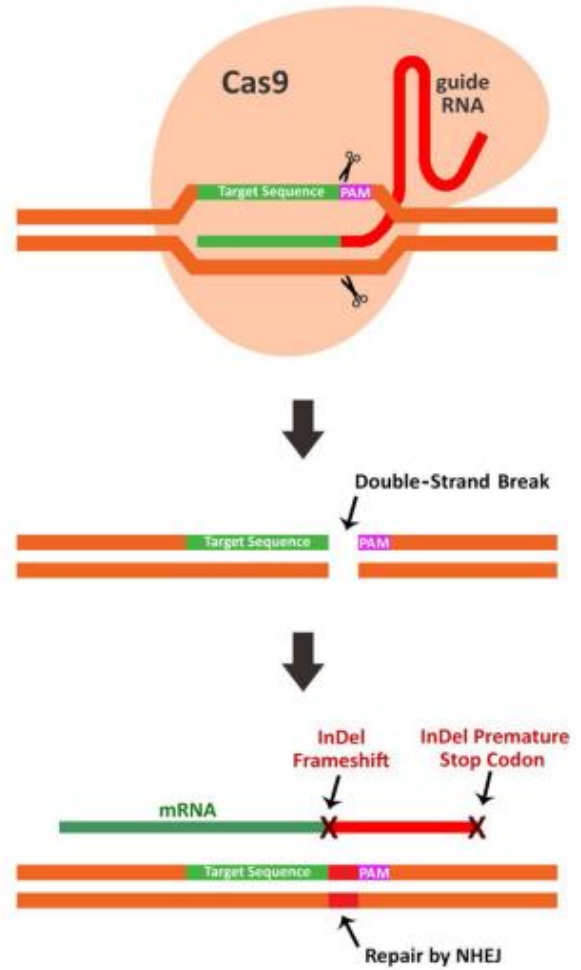


CRISPR Gene Knockout sgRNA Vectors & Viruses



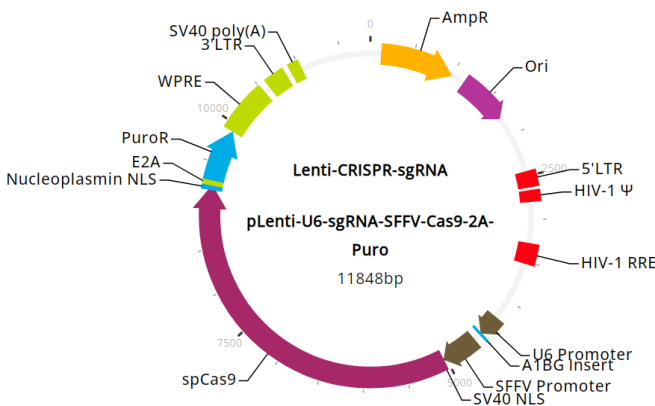
CRISPR Cas9 for Precision Gene Knockout

CRISPR Cas9 is a programmable genome-editing system derived from the bacterial antiviral defense mechanism of *S. pyogenes*. At its core, it uses a Cas9 nuclease guided by a customizable single guide RNA (sgRNA) to locate a specific DNA sequence adjacent to a protospacer-adjacent motif (PAM). Once the sgRNA binds its complementary target, Cas9 induces a precise double-stranded break at that site. In gene-knockout applications, the cell attempts to repair this break primarily through non-homologous end joining (NHEJ), an error-prone pathway that frequently introduces small insertions or deletions. These indels disrupt the reading frame or introduce premature stop codons, effectively abolishing gene function. CRISPR Cas9's simplicity, accuracy, and scalability have transformed molecular biology and it is now widely used to generate loss-of-function cell lines, engineer model organisms, validate gene function, and study disease mechanisms.



High Performance CRISPR Gene Knockout Vectors & Viruses

abm offers a genome-wide collection of CRISPR Cas9 sgRNA expressing vectors and viruses for efficient gene knockout experiments. Each gene is targeted with a set of three sgRNAs, available across Lentiviral, AAV, and non-viral formats. Researchers can choose from All-in-One vectors that co-express Cas9 and the sgRNA, or sgRNA-only vectors compatible with existing Cas9 cell lines or systems. **abm**'s All-in-One Lentiviral Vector (shown below) is a leading tool for CRISPR gene knockout, enabling sgRNA expression from the U6 promoter and expression of Cas9 and Puromycin (can be modified to other markers) selection from the SFFV promoter.



This single-vector system streamlines experiments by leveraging lentiviral delivery across diverse cell types and requiring only one construct to achieve precise gene knockout. **abm**'s All-in-One Lentiviral Vector Sets have been successfully utilized for gene knockout by researchers around the world and have been published in high impact journals such as Nature Communications and Nature Microbiology. Together, these features make **abm**'s CRISPR Cas9 tools a robust and versatile solution for streamlined, high-confidence gene knockout workflows.

Format	Product	Concentration	Quantity
Lentiviral Vector	sgRNA CRISPR/Cas9 All-in-One Lentivector Set	100 ng/μl	3 x 1.0 μg vector
Lentivirus	sgRNA CRISPR/Cas9 All-in-One Lentivirus Set of 3	10 ⁸ IU/ml	3 x 250 μl per virus
		10 ⁹ IU/ml	4 x 100 μl per virus
		10 ¹⁰ IU/ml	10 x 50 μl per virus

Top Publications

Cat. No.	Publication	Journal	Year
K010 LG437367 LG131916 LG431916 LG142954 LG442954	Janneh, A. H., Kassir, M. F., Atilgan, F. C., Lee, H. G., Sheridan, M., Oleinik, N., Szulc, Z., Voelkel-Johnson, C., Nguyen, H., Li, H., Peterson, Y. K., Marangoni, E., Saatci, O., Sahin, O., Lilly, M., Atkinson, C., Tomlinson, S., Mehrotra, S., & Ogretmen, B. (2022). Crosstalk between pro-survival sphingolipid metabolism and complement signaling induces inflammasome-mediated tumor metastasis. <i>Cell Reports</i> , 41(10), 111742. https://doi.org/10.1016/j.celrep.2022.111742	Cell Reports	2022
LG128379 LG138127 LG138165 K010	Shirasaki, T., Yamagoe, S., Shimakami, T., Murai, K., Imamura, R., Ishii, K., Takayama, H., Matsumoto, Y., Tajima-Shirasaki, N., Nagata, N., Shimizu, R., Yamanaka, S., Abe, A., Omura, H., Kawaguchi, K., Okada, H., Yamashita, T., Yoshikawa, T., Takimoto, K.,...Honda, M. (2022). Leukocyte cell-derived chemotaxin 2 is an antiviral regulator acting through the proto-oncogene MET. <i>Nature Communications</i> , 13(1), 3176. https://doi.org/10.1038/s41467-022-30879-3	Nature Communications	2022
LG112866	Nguyen, T. T. T., Shang, E., Shu, C., Kim, S., Mela, A., Humala, N., Mahajan, A., Yang, H. W., Akman, H. O., Quinzii, C. M., Zhang, G., Westhoff, M.-A., Karpel-Massler, G., Bruce, J. N., Canoll, P., & Siegelin, M. D. (2021). Aurora kinase A inhibition reverses the Warburg effect and elicits unique metabolic vulnerabilities in glioblastoma. <i>Nature Communications</i> , 12(1), 5203. https://doi.org/10.1038/s41467-021-25501-x	Nature Communications	2021
LG149097	Das, A., Barrientos, R., Shiota, T., Madigan, V., Misumi, I., McKnight, K. L., Sun, L., Li, Z., Meganck, R. M., Li, Y., Kaluzna, E., Asokan, A., Whitmire, J. K., Kapustina, M., Zhang, Q., & Lemon, S. M. (2020). Gangliosides are essential endosomal receptors for quasi-enveloped and naked hepatitis A virus. <i>Nature Microbiology</i> , 5(9), 1069–1078. https://doi.org/10.1038/s41564-020-0727-8	Nature Microbiology	2020
LG125121	Alcalá, S., Sancho, P., Martinelli, P., Navarro, D. A., Pedrero, C., Martin-Hijano, L., Sandra Costa Valle, Earl, J., Macarena Rodríguez-Serrano, Ruiz-Cañas, L., Katerin Ingrid Rojas, Carrato, A., María Laura García-Bermejo, Miguel Ángel Fernández-Moreno, Hermann, P. C., & Sainz, B. (2020). ISG15 and ISGylation is required for pancreatic cancer stem cell mitophagy and metabolic plasticity. <i>Nature Communications</i> , 11(1). https://doi.org/10.1038/s41467-020-16395-2	Nature Communications	2020
K010 LG138519 LG125077	Yamane, D., Feng, H., Rivera-Serrano, E. E., Selitsky, S. R., Hirai-Yuki, A., Das, A., McKnight, K. L., Misumi, I., Hensley, L., Lovell, W., González-López, O., Suzuki, R., Matsuda, M., Nakanishi, H., Ohto-Nakanishi, T., Hishiki, T., Wauthier, E., Oikawa, T., Morita, K., & Reid, L. M. (2019). Basal expression of interferon regulatory factor 1 drives intrinsic hepatocyte resistance to multiple RNA viruses. <i>Nature Microbiology</i> , 4(7), 1096–1104. https://doi.org/10.1038/s41564-019-0425-6	Nature Microbiology	2019
LG115352	Bueno, M. J., Jimenez-Renard, V., Samino, S., Capellades, J., Junza, A., López-Rodríguez, M. L., Garcia-Carceles, J., Lopez-Fabuel, I., Bolaños, J. P., Chandel, N. S., Yanes, O., Colomer, R., & Quintela-Fandino, M. (2019). Essentiality of fatty acid synthase in the 2D to anchorage-independent growth transition in transforming cells. <i>Nature Communications</i> , 10(1), 5011. https://doi.org/10.1038/s41467-019-13028-1	Nature Communications	2019

CRISPR Knockout sgRNA Vector & Virus Collection Features		
Genes	Genome-wide Targets	✓
Species	Human, Mouse and Rat	✓
Systems	Lentivirus, AAV, Non-Viral	✓
Formats	All-in-One or sgRNA only	✓
Deliverable	Vector or Virus	✓

Learn more about our CRISPR Knockout Library at: <https://www.abmgood.com/crispr-knockout-library.html>