

A 3D molecular model of a protein structure, rendered in various colors (green, blue, orange, yellow) against a dark green background. The structure is complex and multi-domain, with a prominent helical region. The image is split vertically, with the left side being dark green and the right side being a lighter, semi-transparent green.

Creative Biogene

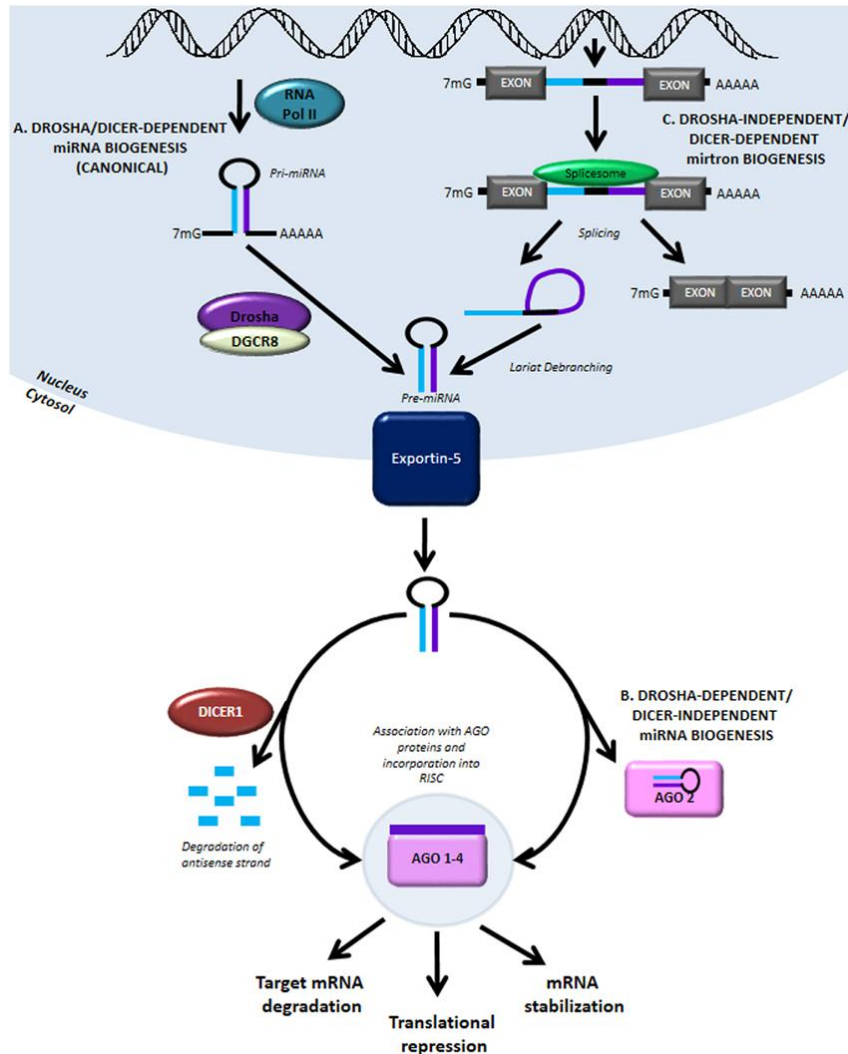
**MiRNA Agomir/Antagomir
Synthesis Services**



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On Overview of miRNA

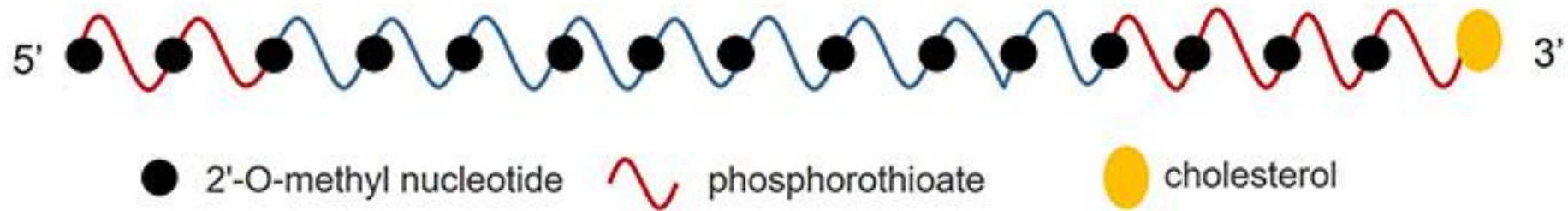


MicroRNAs comprise a novel class of endogenous, small (only about 20 to 25 nucleotides), and noncoding RNAs, and almost involved in the physiologic and pathologic process of the cardiovascular system. MicroRNAs, in common, play the similar roles as transcription factors by specifically binding the seed sequence within 3'UTR of target genes, by activating their degradation or inhibiting their translation of the target genes mRNAs or inhibit their translation, which results in a variety of cell activities changing at different levels. Moreover, during each stage of development, microRNAs maintain the shift balance between differentiation and proliferation of cell-status.

On Overview of miRNA

miRNAs play important roles in various cellular processes including apoptosis, cell division, and proliferation and others. Investigations of miRNAs will help to decipher protein functions and even discover new drugs. Creative Biogene is committed to providing outstanding miRNA products and comprehensive services to facilitate and simplify miRNA investigation.

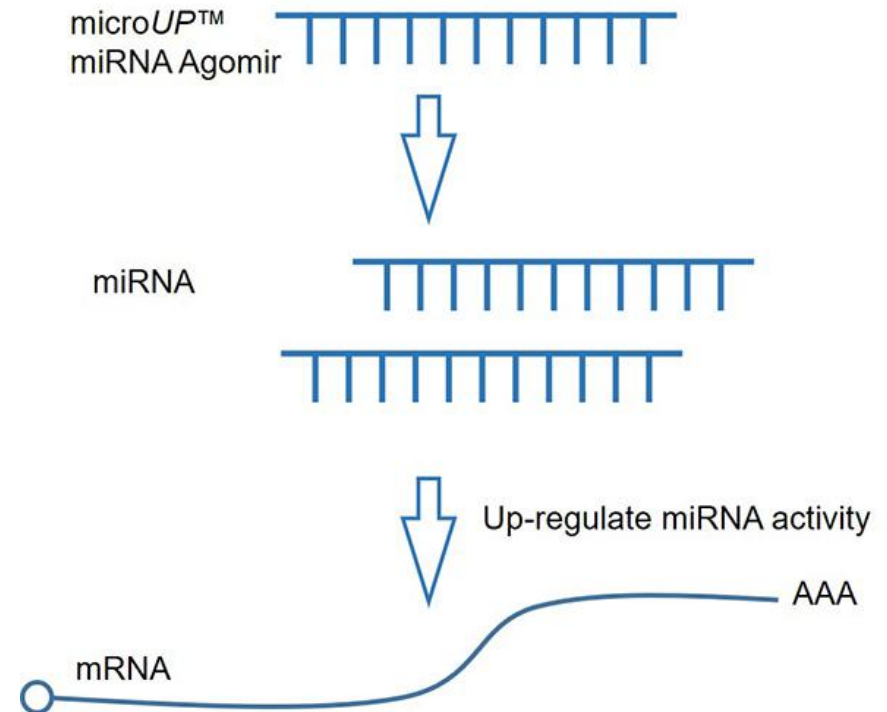
Creative Biogene is a global leading agomir/ antagomir service provider for all passionate scientific researchers. And our comprehensive synthesis service is supported by Cutting-Edge Chemical Synthesis Technology. Agomir/antagomir are members of a novel class of chemically engineered oligonucleotides.



microUP™ miRNA Agomir

Agomir is chemically-modified double-strand miRNA mimics which can mimic mature endogenous miRNAs after transfection into cells. They can up-regulate the endogenous miRNA activity by utilizing the natural miRNA machinery.

The antisense strand of the agomir has 2 phosphorothioates at the 5' end, 4 phosphorothioates, 1 cholesterol group at the 3' end, and full-length nucleotide 2'-methoxy modification. It exhibits enhanced cellular uptake, stability and regulatory activity *in vivo*. They can up-regulate the corresponding endogenous miRNAs by either local or systemic injection into the animals.



Mechanism of *microUP*[™] miRNA agomir.

microUP™ miRNA Agomir

Creative Biogene's microUP™ miRNA agomir is designed to mimic mature miRNAs, and chemically modified to increase their stability and activity. They are recommended for miRNA functional *in vitro* and *in vivo* studies.

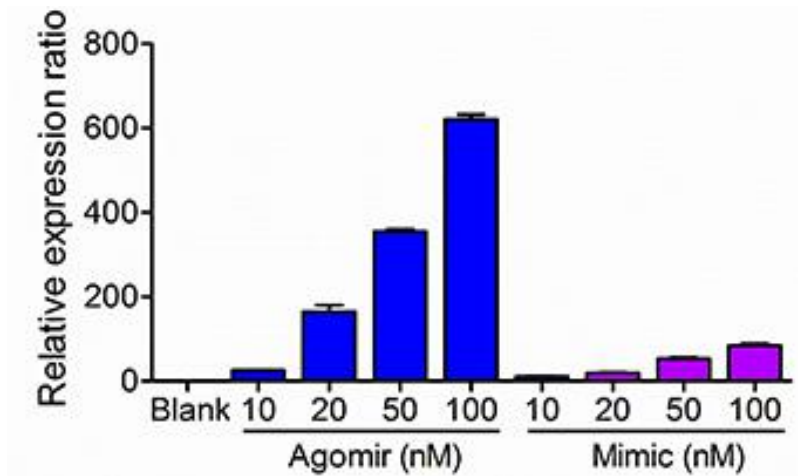


Figure 1. Cells are incubated with equal amount of microUP™ miRNA agomir and miRNA mimic. qRT-PCR is performed after 2 days.

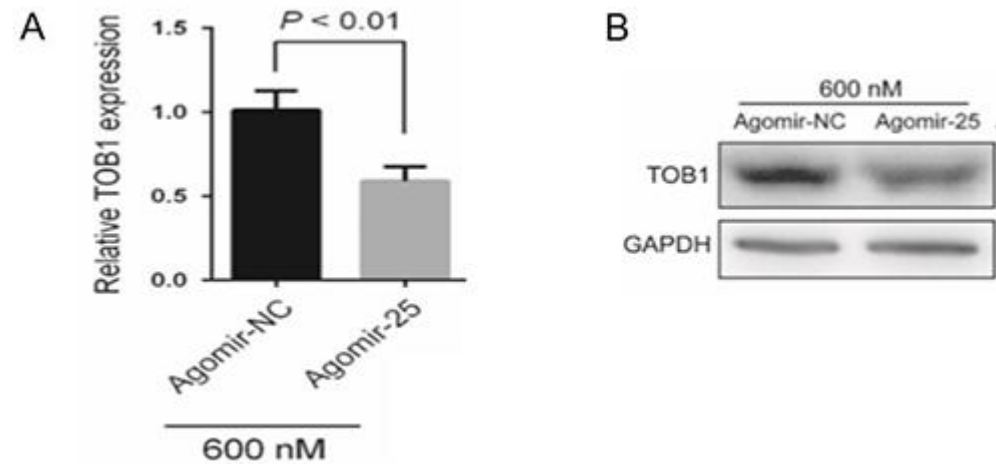


Figure 2. qRT-PCR and western blot assays show the mRNA (A) and protein (B) expressions of TOB1 after transfection with agomir-NC and agomir-25.

microUP™ miRNA Agomir

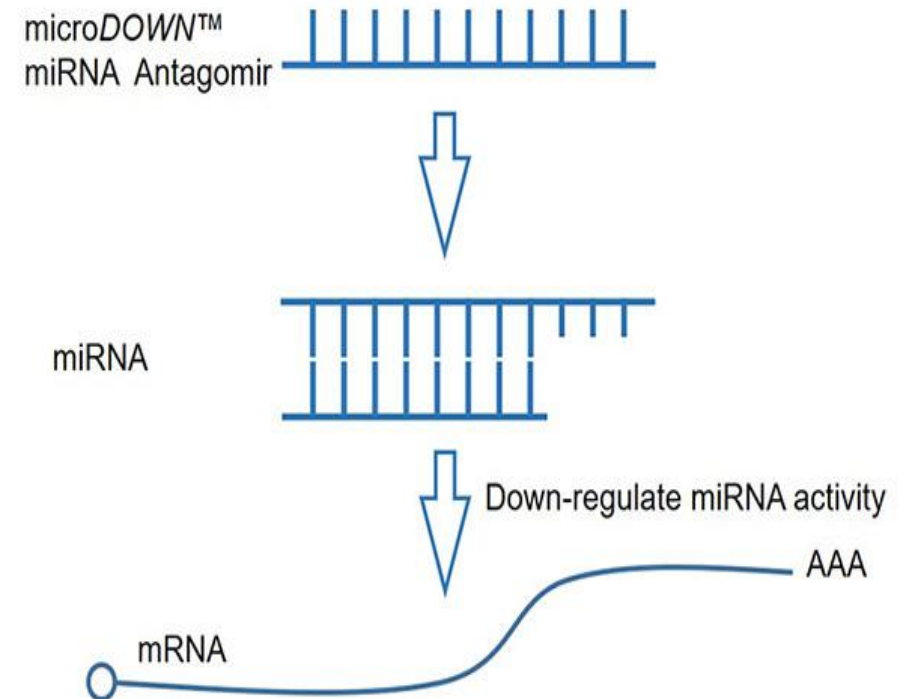
Recommended amounts of *microUP™* miRNA agomir for your *in vivo* study.

References	miRNA	Animal	Delivery	Doses	Volume	Injection Times	Detection
Min-Jie Ni, <i>et al.</i> PLoS ONE. 2011	miR-HongrES2	7~10 days SD rat	cauda epididymis injection	4 nmol per side	N/A	N/A	3 days after injection
Dong Li, <i>et al.</i> JBC. 2011	miR-99a	nude mice	tumor mass injection	10 nmol	0.1 ml per injection	every three days for two weeks	2~4 weeks after injection
Jin Hou, <i>et al.</i> Cancer Cell. 2007	miR-199a/b-3p	nude mice	tumor mass injection	10 nmol	0.1 ml per injection	once every three days for two weeks	2~4 weeks after injection

microDOWNTM miRNA Antagomir

Antagomir is chemically-modified single-strand miRNA inhibitor functioning by blocking miRNA regulation of target gene expression efficiently. They are synthesized to reduce the ability of endogenous miRNAs to silence target mRNA transcripts. They can down-regulate the corresponding endogenous miRNAs by either local or systemic injection into the animals.

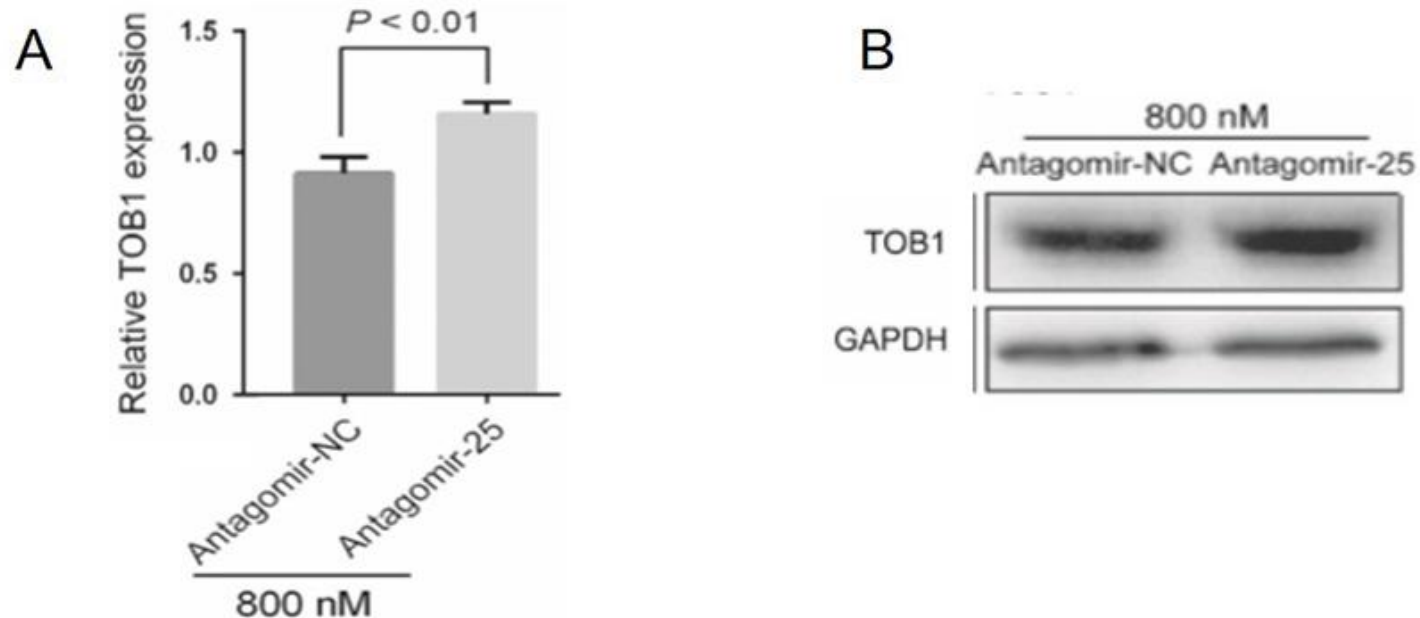
The strand of the antagomir has 2 phosphorothioates at the 5' end, 4 phosphorothioates, 1 cholesterol group at the 3' end, and full-length nucleotide 2'-methoxy modification. Stability of microDOWNTM miRNA antagomir appears to be significantly higher than miRNA inhibitors. It exhibits enhanced cellular uptake, stability and regulatory activity and is recommended for miRNA functional studies *in vitro* and *in vivo*.



Mechanism of microDOWNTM miRNA antagomir.

microDOWN™ miRNA Antagomir

Creative Biogene's microDOWN™ miRNA antagomir is single-strand miRNA inhibitor carrying the chemical modifications functioning by blocking miRNA regulation of target gene expression efficiently.



qRT-PCR and western blot assays show the mRNA (A) and protein (B) expressions of TOB1 after transfection with antagomir-NC and antagomir-25.

microDOWN™ miRNA Antagomir

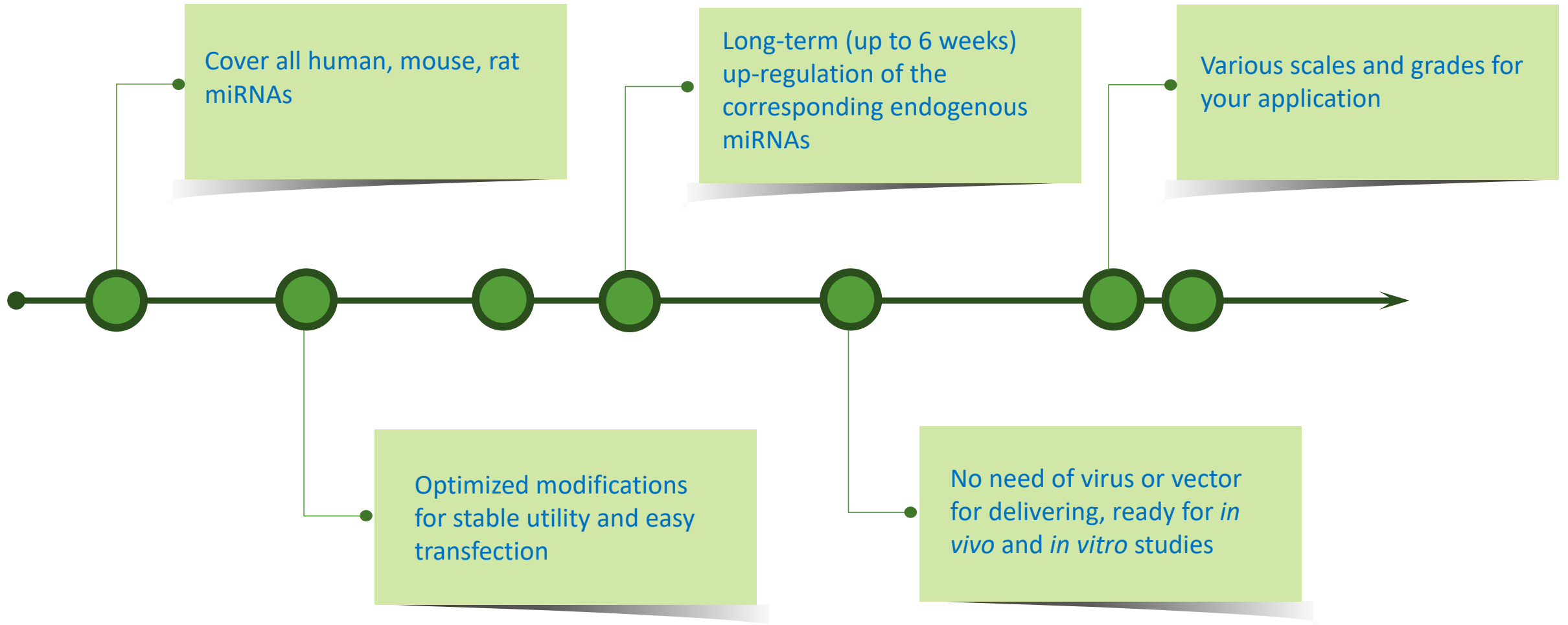
Recommended amounts of microDOWN™ antagomir for your cell assay.

References	miRNA	Cell	Antagomir
Shan Y, <i>et al.</i> Gastroenterology. 2007	miR-122	Huh-7 WT, CNS3	50 nM
Brian D, <i>et al.</i> Mol Ther. 2007	miR-206	HeLa, MDA-231, MCF-7	20-50 nM
Zhu H, <i>et al.</i> Biochem Pharmacol. 2008	miR-27a, miR-451	A2780	100 nM
Alla Musiyenko, <i>et al.</i> J Mol Med. 2008	miR-126, miR-126	LNCaP	10~30 nM
Jia Yu, <i>et al.</i> PNAS. 2008	miR-184, miR-205	HeLa, HEKs	1 μM
Federica <i>et al.</i> Cancer Res. 2008	miR-221, miR-222	Me665/1	50~250 nM
Relja Popovic, <i>et al.</i> Blood. 2009	miR-196b	bone marrow cells	100 nM
Pascal Pineau, <i>et al.</i> PNAS. 2010	miR-221, miR-222	hepatocellular carcinoma-derived	100 μM
Xiaogang Wang, <i>et al.</i> Nat Med. 2012	miR-214	MC3T3-E1, hFOB	200 μM
Wang X, <i>et al.</i> Nat Med. 2013	miR-214	MC3T3-E1	200 nM

Resuspension Protocol

1. Briefly centrifuge tubes containing miRNA agomir/antagomir to ensure that the miRNA pellet is located at the bottom of the tube.
2. Dissolve miRNA agomir/antagomir to a convenient stock concentration using the recommended volume of DEPC H₂O (or RNase-free water). For example: dissolve 1 OD miRNA agomir/antagomir to 20 μM using 125 μl DEPC H₂O (or RNase-free water).
3. Pipette the solution up and down 3-5 times (or vortex briefly).
4. Briefly centrifuge tubes containing miRNA agomir/antagomir to ensure that the solution is collected at the bottom of the tube.
5. Aliquot the miRNA agomir/antagomir into small volumes and store at ≤ -20°C. miRNA agomir/antagomir is stable (for 6 months under the specified storage condition). For best results, use in 3 months and limit freeze-thaw events for each tube no more than five times.

Advantages



THANKS

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