Application note

AUM*lnc:* FANA antisense oligonucleotides (FANA ASOs) for lncRNA silencing and regulation

AUM*lnc* provides potent lncRNA knockdown by using FANA technology which is a third generation chemical modification platform. FANA technology allows simple and efficient delivery into difficult-to-transfect cells and animals without the need of transfection reagents or formulations.

AUM*lnc:* Key features

- Easy self-delivery without the need of transfection regents
- Excellent uptake in difficult-to-transfect cells and primary cultures
- No toxicity
- High specificity and affinity for target lncRNA
- High stability and resistance to endonucleases

FANA ASOs	vs.	siRNA
Not required	Transfection reagents	Required
High	Efficiency in difficult-to-transfect cells	Low-Moderate
Non-toxic	Toxicity	Could be toxic due to the use of transfection reagents
Easy and convenient one-step process	Transition from cell culture to *in vivo* models	Require extensive optimization use of delivery reagents
High: Resistant to nucleases	Stability	Moderate
No	RISC-associated off-target effects	Yes
FANAs have high binding affinity and specificity to the target RNA	Specificity	siRNA grade binding affinity and specificity

Lipid-based transfection and electroporation are widely utilized, conventional methods to deliver siRNA into the cells. However, in many primary cells, particularly immune cells, hematopoietic cells and neurons, lipid reagents and electroporation are associated with high toxicity and poor transfection efficiency. Alternative delivery methods, such as viral vectors, require laborious optimization and viral production steps, and carry associated risk of genome integration.

FANA Antisense Oligonucleotides (FANA ASOs) are uniquely modified with 2'-deoxy-2'-fluoro-arabinoguanosine (FANA) that enhances the intracellular stability of the oligos, as well as their binding to the target lncRNA. The FANA modifications also allow for the oligos to be self-delivered into cells without any transfection reagents, as well as in animals, without the need of special delivery formulations.

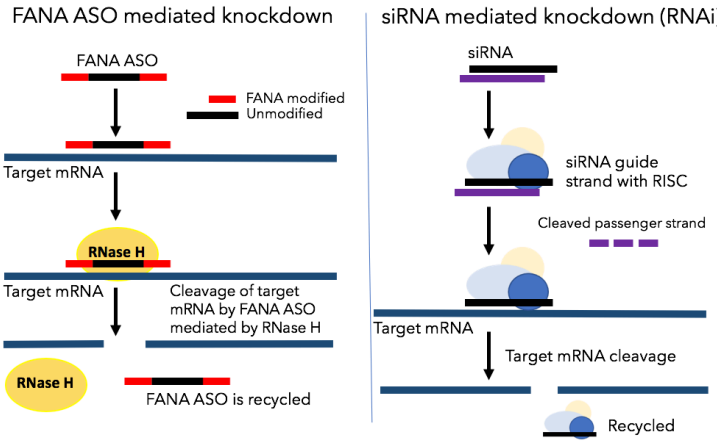

Figure 1. Comparison of FANA ASO and siRNA mode of action.

As opposed to the RNAi pathway (involving RISC) FANA single-stranded antisense oligonucleotides use RNase H-mediated cleavage (Fig.1). This mode of lncRNA knockdown is simpler than siRNA mediated knockdown and eliminates RISC-associated off-target effects often observed with siRNA. Unlike siRNAs that are processed in the cytoplasm, FANA oligos can go into the nucleus and can be used to target RNA present within the nucleus. Most importantly FANAs can be self delivered and do not need transfection reagents or delivery agents.

Ordering information:

Product name	Purification	Application	Study model
AUM*lnc*	RPC	lncRNA knockdown	Cells lines and primary cells
AUM*lnc*	HPLC	lncRNA knockdown	Sensitive primary cells and animal models
AUM*lnc*	In-vivo ready	lncRNA knockdown	Animal models

Notes:

- **Labeled FANAs:** FANA ASOs can be labeled with any fluorescent label or tag (eg. biotin).
- **Size:** FANAs are available in 10, 25, 50, 100, 250, 500 and 1000 nmoles. Higher amounts are also available.

To order please visit:

aumbiotech.com/RNAsilencing

Or email us at:
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