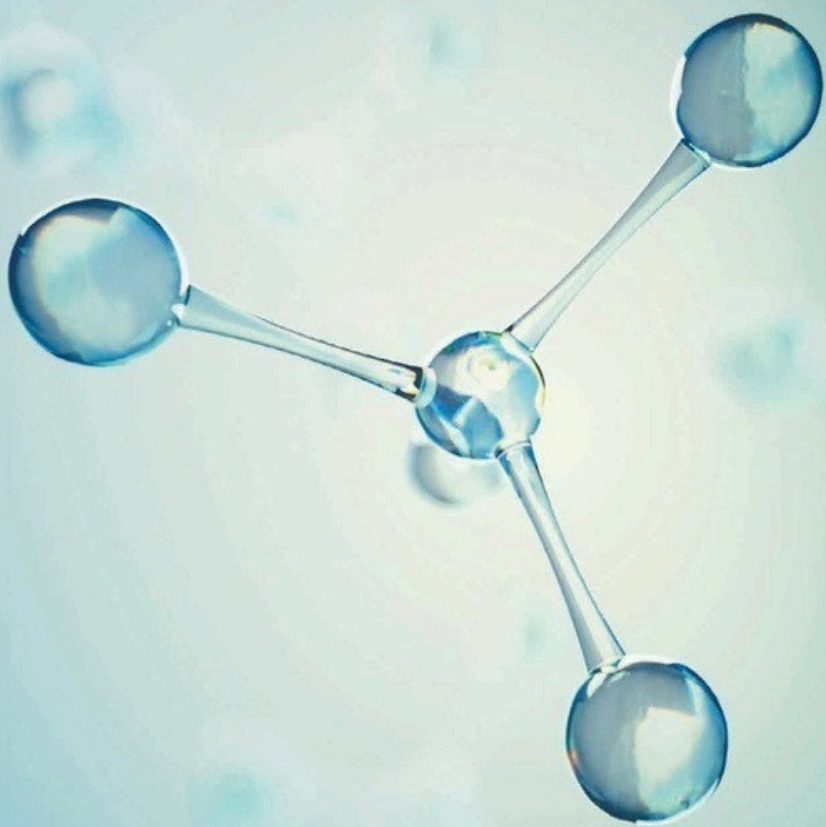


MODIFIED PHOSPHORAMIDITES



Summit Pharmaceuticals Europe

BUSINESS MODEL AND TRACK RECORDS

COLLABORATIVE ASO DRUG DISCOVERY



And so on...

LICENSING OF XNAs TECHNOLOGY



OWN DRUG DEVELOPMENT, GO FOR ASSET LICENSE

ALS / TRIPLET REPEAT DISEASE

SPINAL CORD INJURY

OPHTHALMOLOGICAL DISEASE

CONTRIBUTION TO YOUR ASO DRUG DEVELOPMENT

1. Licensing of XNAs technology on a gene-by-gene basis

You have in-house resources for oligonucleotide drug development, but there are issues that you cannot solve on your own...



Luxna offers XNAs technology out-licensing opportunity, start with an MTA for evaluation or an exclusive technology licensing agreement.

2. Collaborative drug discovery

You have good candidate antisense but you need better tox and efficacy profile...



Collaborative research for "Lead Optimization"

You have good target gene of genetic disorder or other specific overexpression for treatment...



Collaborative discovery from "Screening"

3. In-house drug development -> Asset licensing

You are looking for drug candidate...

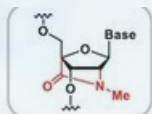
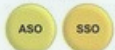


Collaborative development or asset licensing of our in-house developed pipelines

NEW PHOSPHORAMIDITES FOR OLIGONUCLEOTIDE SYNTHESIS

Amido-bridged nucleic acid

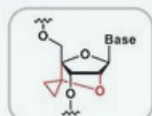
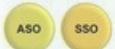
AmNA™



- High binding affinity towards complementary ssRNA (+4 °C/mod)
- Improves metabolic stability
- Reduces hepatotoxicity

Spirocyclopropylene-bridged nucleic acid

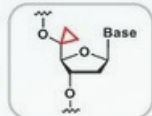
scpBNA™



- High binding affinity towards complementary ssRNA (+5 °C/mod)
- Improves metabolic stability
- Introduce hydrophobic moiety to oligonucleotide

5'-cyclopropylene nucleic acid

5'-CP™

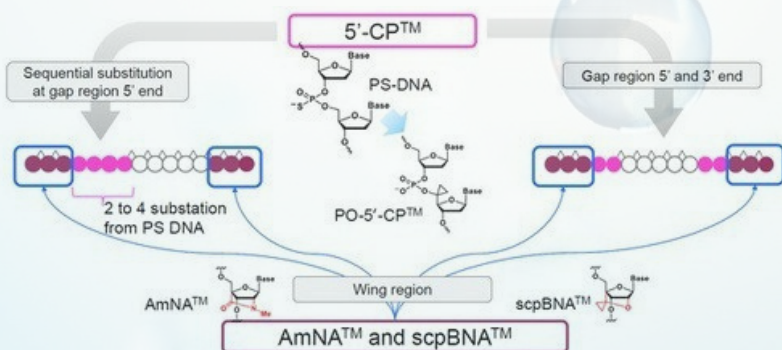


- Sugar conformation similar to DNA
- Reduces binding affinity towards complementary ssRNA (-3 °C/mod)
- Improves enzymatic stability enabling PS modification reduction
- Reduces toxicity of an oligonucleotide
- Reduces off-target effects

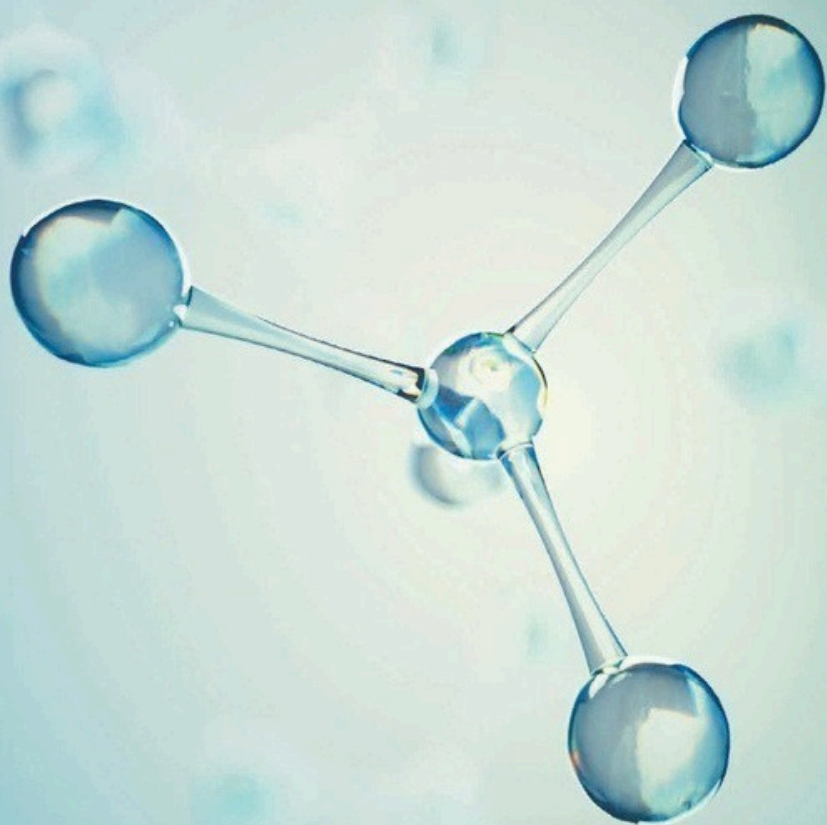
Luxna XNAs are available from its collaboration partner, Summit Pharmaceuticals International Corporation (SPI)




RECOMMENDED INCORPORATION OF XNAs [GAPMER]



Combined incorporation of Luxna XNAs enables to produce suitable ASO gapmer



 **SPE**

Summit Pharmaceuticals Europe