



Noxopharm Limited ([ASX:NOX](#)) | ASX Announcement | 17 November 2021

Noxopharm 2021 AGM Corporate Presentation

- Scientific research this year continues to validate potential major role for Veyonda as standard of care cancer therapy
- Patent protection building to underpin the commercial value of that role
- Veyonda clinical program update
- Pipeline of new anti-cancer drug compounds directed at brain and pancreatic cancers
- The path towards a commercial strategy
- Introduction to Pharmorage – wholly-owned subsidiary focusing on autoimmune diseases and inflammatory conditions with exciting first in class drug opportunities.

Sydney 17 November 2021: Australian clinical-stage drug development company Noxopharm Limited (ASX:NOX) is pleased to release its 2021 AGM Corporate Presentation.

Graham Kelly, CEO and Managing Director of Noxopharm, has approved the release of this document to the market on behalf of the Board of Directors.

About Noxopharm

Noxopharm Limited (ASX:NOX) is an Australian clinical-stage drug development company focused on the treatment of cancer and cytokine release syndrome (septic shock).

Veyonda® is the Company's first pipe-line drug candidate currently in Phase 2 clinical trialling. Veyonda® has two main drug actions – a moderating effect on the ceramide/sphingosine-1-phosphate balance and inhibition of STING signalling. Activity against the former target contributes to its dual-acting oncotoxic and immunomodulatory functions designed to enhance the effectiveness and safety of standard oncology treatments, i.e., chemotherapies, radiation therapies and immune checkpoint inhibitors. Activity against the latter target provides an anti-inflammatory effect, as well as contributing to an anti-cancer action, but also potentially blocking septic shock.

Noxopharm is running comprehensive drug discovery programs in both oncology and inflammation, and is the major shareholder of US biotechnology company, Nyrada Inc (ASX:NYR), active in the areas of drug development for cardiovascular and neurological diseases.

To learn more, please visit: noxopharm.com



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Forward Looking Statements

This announcement may contain forward-looking statements. You can identify these statements by the fact they use words such as “aim”, “anticipate”, “assume”, “believe”, “continue”, “could”, “estimate”, “expect”, “intend”, “may”, “plan”, “predict”, “project”, “plan”, “should”, “target”, “will” or “would” or the negative of such terms or other similar expressions. Forward-looking statements are based on estimates, projections and assumptions made by Noxopharm about circumstances and events that have not yet taken place. Although Noxopharm believes the forward-looking statements to be reasonable, they are not certain. Forward-looking statements involve known and unknown risks, uncertainties and other factors that are in some cases beyond the Company’s control (including but not limited to the COVID-19 pandemic) that could cause the actual results, performance or achievements to differ materially from those expressed or implied by the forward-looking statement.

Noxopharm Limited

AGM 2021

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Veyonda® currently is not approved for use in Australia or any other country.



CEO Corporate Update

Dr Graham Kelly
CEO and MD

2021 AGM

The Company has reached a major milestone in its development

Time to look at what the next 12 months hold

A future based on a proprietary synthetic isoflavonoid platform providing a unique family of drugs:

- with multiple targets of action
- an ability to distinguish between normal and abnormal functions



a new generation of therapeutics

safer & more effective

for chronic diseases marked by multiple mutations and multiple biologies

cancer

chronic
inflammation

autoimmunity

4 key business opportunities



Veyonda®

Cancer treatment
enhancement



**Cancer Research
Pipeline**

Cancer growth
factor inhibitors



Veyonda®

Septic shock



pharmorage

Chronic inflammatory
diseases/autoimmune
diseases

Oncology - Veyonda®



Veyonda®

Cancer treatment
enhancement

Completing the package to increase the value and attraction of Veyonda® as an acquisition target

Patent
portfolio
Use claims

Orphan Drug
designations
Market
exclusivity

Mechanisms of
action
Drug category

Full range of
clinical
opportunities
Value creation

Pre-clinical programs

- 6 pre-clinical studies of idronoxil (IDX)
- Major university studies in Germany, Australia, Hong Kong
- Read-outs due over next 6 months

S1P inhibition and
immune response

¹⁷⁷Lu-PSMA
enhancement in
prostate Ca

COLD to HOT
tumour conversion

IDX + Keytruda in
nasopharyngeal Ca

Oncology - Pipeline



Cancer Research Pipeline

Cancer growth factor inhibitors

A pipeline of 3 exciting new anti-cancer drugs with novel actions

Drug 1:
Glioblastoma
(GBM, DIPG)

Drug 2:
Pancreatic cancer

Drug 3:
Multiple cancer types

G-protein coupled receptor inhibitors
Targeting highly aggressive cancers dependent on supporting stromal cells for growth signals

Second generation Veyonda
Based on most active form of IDX in the body

Purpose:

- Stop aggressive cancer growth
- Prevent killing of healthy brain tissue to make room for cancer growth

Purpose:

- Stop aggressive cancer growth
- Enhance cancer-killing effect of chemotherapy
- Remove scar tissue blocking access to cancer by chemo drugs

Sepsis - Veyonda®



Veyonda®

Septic shock

Anti-inflammatory action blocking cytokine storm and sepsis

Pre-clinical programs

Mouse influenza virus model testing:

- Lung inflammation
- Viral replication

Direct anti-viral action

- Blocking SARS-CoV-2 viral replication through inhibition of sphingosine kinase

SARS-CoV-2 mouse model:

- Blocking disease progression

Clinical program

Awaiting notification of acceptance into a global adaptive study

Inflammation - Pharmorage



pharmorage

Chronic inflammatory diseases/autoimmune diseases

Development of anti-inflammatory drugs based on two technology platforms

Synthetic Isoflavonoids
Pharm-ISO

Novel family of inhibitors of TBK1 and certain other inflammatory signaling pathways identified.

Imminent lodgement of a series of patent applications.

RNA technology
Pharm-RNA

In vivo testing of RNA drug(s) as treatments of autoimmune diseases

In vivo testing of mRNA vaccine technology with aim of improving safety and production efficiencies

Summary

- A unique synthetic isoflavonoid technology platform offering the ability to meet two needs of human degenerative disease - multiple errors and ability of the drugs to distinguish healthy from unhealthy cells
- A strategy to establish the value of the oncology business:

Veyonda

- Positive clinical data
- Distinguishing mechanisms of action
- Patented therapeutic use and product formulation claims
- Potential regulatory benefits eg Orphan Drug designation

Pipeline

- First-in-class drug designed to block destructive effects of brain cancer
- First-in-class drug designed to reduce aggression of pancreatic cancer
- Next generation Veyonda

- An opportunistic use of Veyonda as a COVID-19 treatment. Lesser priority compared to oncology use, and further development dependent on acceptance into funded trials
- The establishment of a second business unit, Pharmorage, with a very real opportunity to become a major player in the high value field of drug discovery for chronic inflammatory/autoimmune diseases

Company Key Metrics

Number of Shares **292.2 million**

Board Shareholding **14.8%**

Share Price (12/11/21) **48 cents**

Market Cap (12/11/21) **\$142 million**

Cash position (30/9/21) **\$23.6 million**



Clinical Portfolio Overview

Dr Gisela Mautner, CMO

MD-PhD (TU Munich-LMU Munich), MPH (Harvard), MBA (Kellogg), FACPE (Australia), MAICD

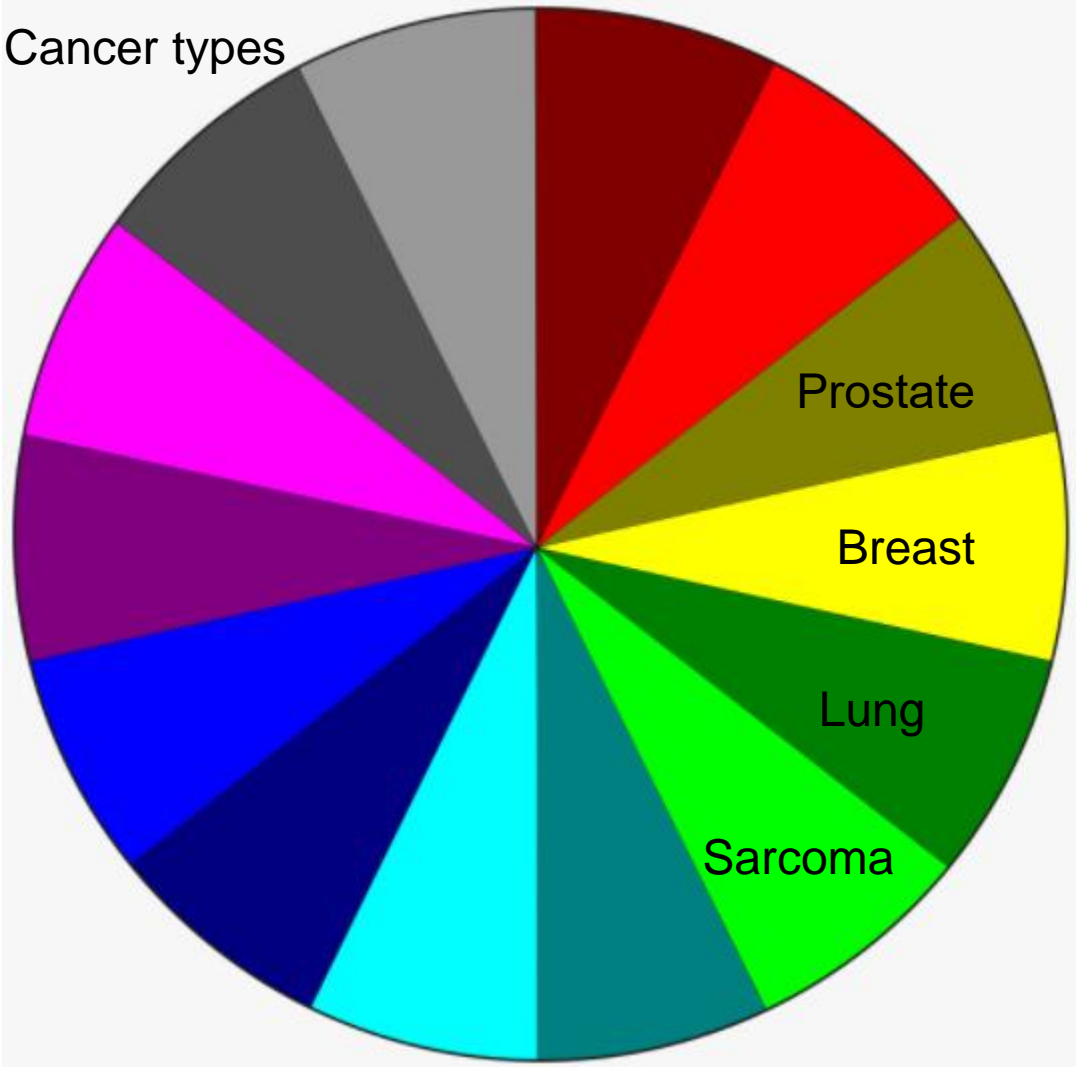
Clinical Portfolio – Key Considerations

Strategic direction is underpinned by the following considerations:

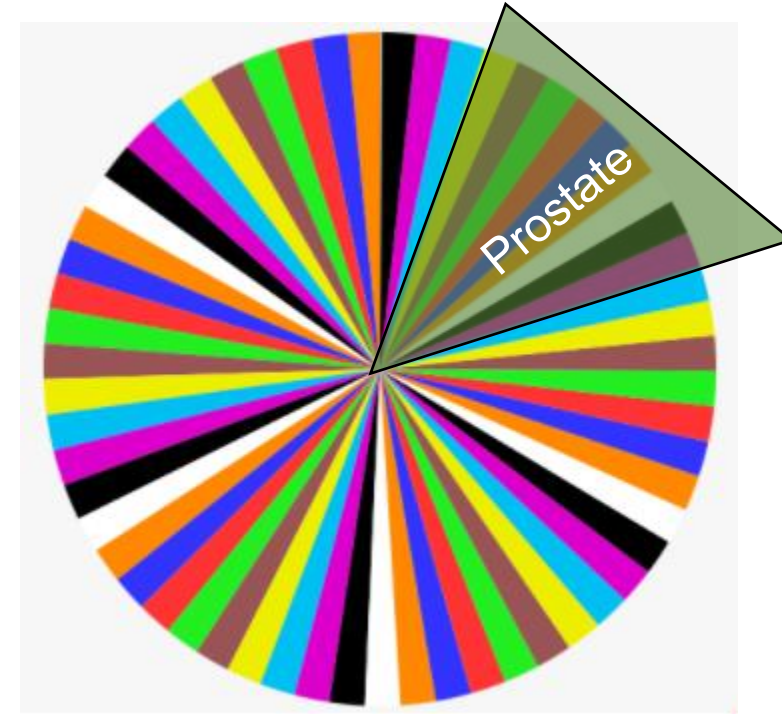
- **Data:** a sound rationale based on preclinical data
- **Diversity:** a diverse portfolio with a clear focus on progressing the research
- **Risk Management:** a robust risk management framework
- **Resource Efficiencies:** to gain time efficiencies by conducting studies in parallel rather than sequentially
- **Cost-effectiveness**
- **Increased value** for every stakeholder

Taking a Portfolio Approach

Cancer types



Indications



- Disease state:
 - Oligometastatic
 - nmHSPC
 - mHSPC
 - nmCRPC
 - mCRPC
- Combination with:
 - Radiation
 - LuPSMA
 - Chemo XYZ
 - Other drugs
 - ...
 - ...

Taking a Cost-Effective Approach

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Phase 1

Phase 2

Phase 3

— Expenditure



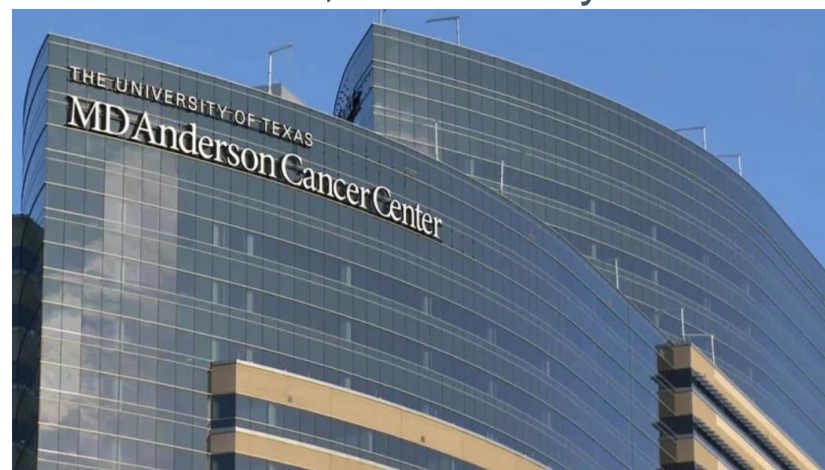
Veyonda[®] Clinical Development Portfolio

Program	Combination	Indication	Phase 1	Phase 2
DARRT	Veyonda + EBRT	Prostate Ca	DARRT-1 Completed	DARRT-2 Active
IONIC	Veyonda + nivolumab	Multiple Tumours	IONIC Active	
LuPIN	Veyonda + ¹⁷⁷ LuPSMA-617	Prostate Ca	LuPIN Completed	
CEP	Veyonda + chemotherapy	Multiple Tumours Sarcoma	CEP-1 Completed CEP-2 in Start Up	
NOXCOVID	Veyonda monotherapy	COVID-19	NOXCOVID Completed	



DARRT-2 Trial

- IND received from FDA
- Two clinical sites in the USA are fully contracted and received Ethics approval
- More sites are starting up in coming months in AUS and Europe
- Active recruitment of patients
- Study is in 2 parts:
 - Dose escalation: 1200 mg to 2400 mg; any solid tumour
 - Dose expansion: final dose; focus on prostate cancer, additionally breast and lung cancer



IONIC Trial

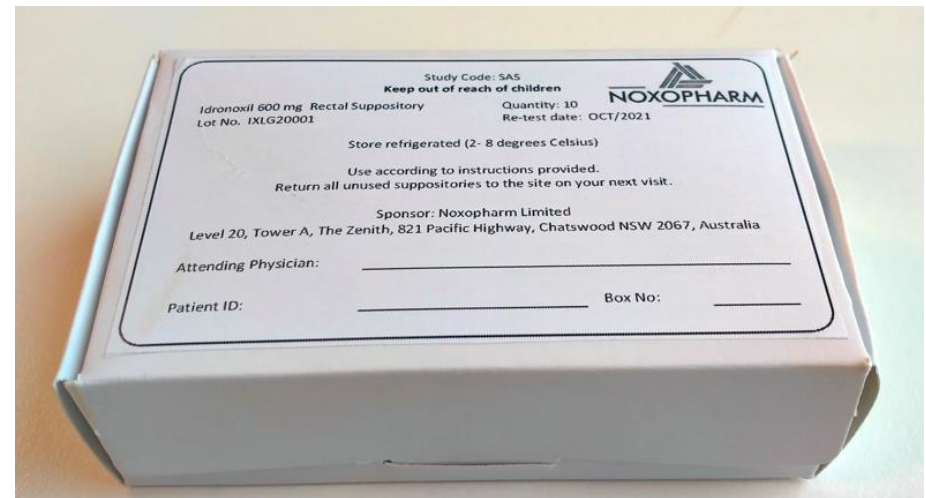


- Investigator initiated study
- Actively recruiting
- First 2 patients enrolled
- First safety report shortly (after 3 patients have completed 1 cycle of Veyonda + nivolumab)



Nivolumab owned by BMS

&



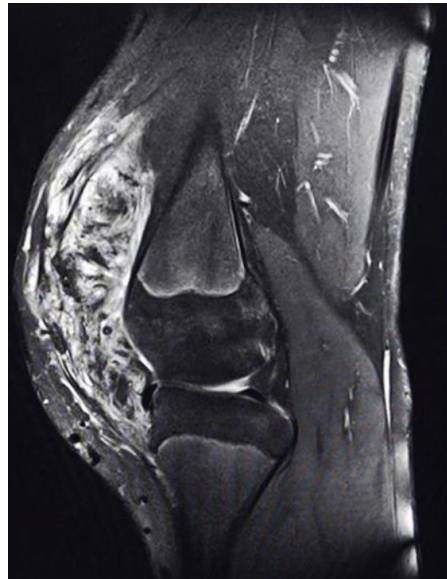
Veyonda





CEP-2 Trial

- IND from FDA received
- Trial will be conducted in the USA due to strong interest
- Contract negotiations with clinical sites are ongoing
- Ethics approvals for sites are expected shortly

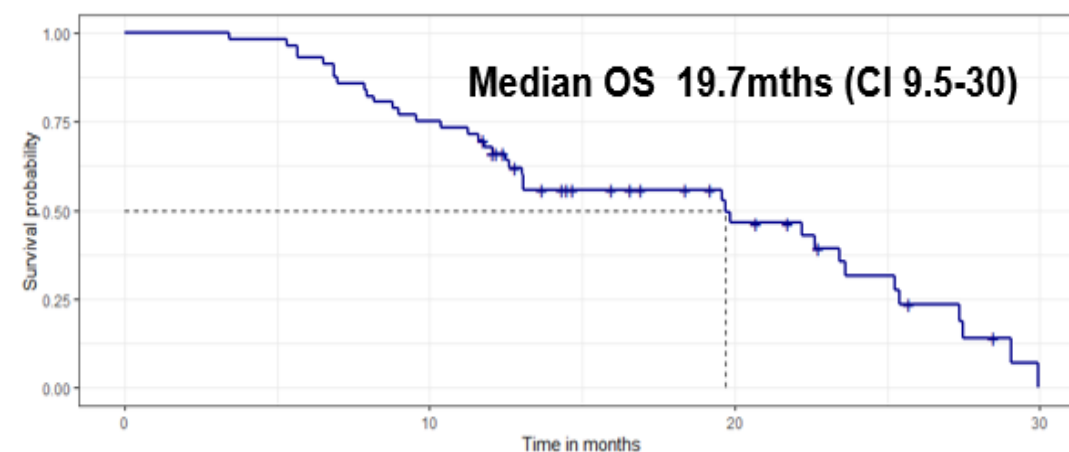
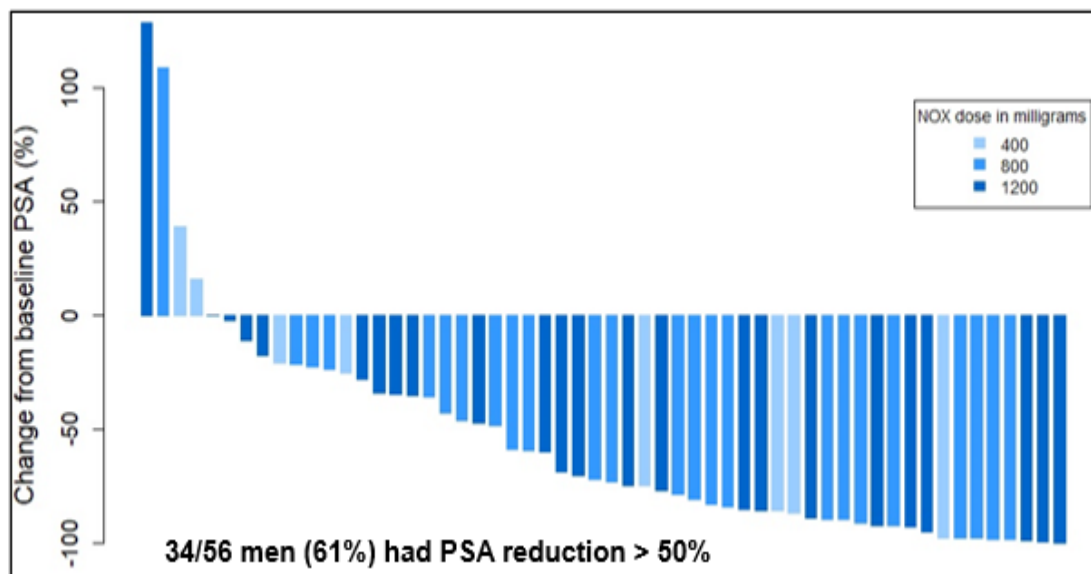


MRI showing sarcoma of the knee
(Photo: semnic/Getty Images)



LuPIN Trial

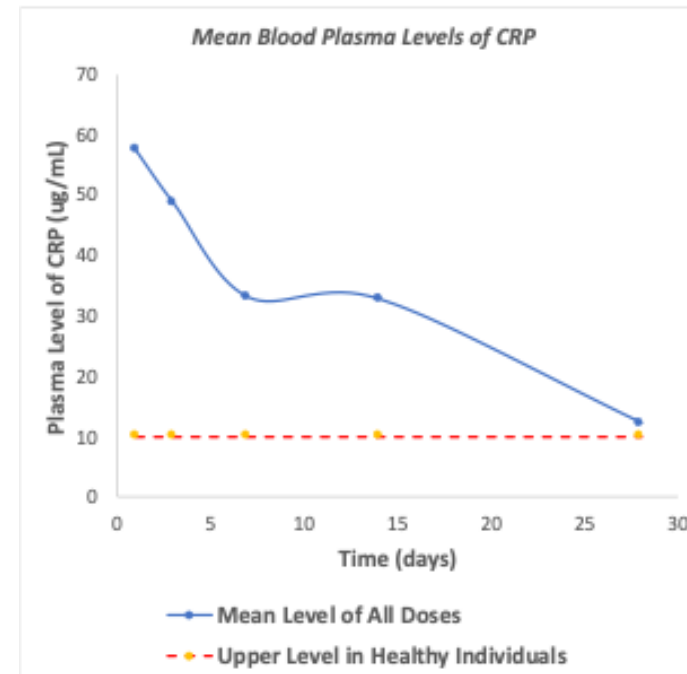
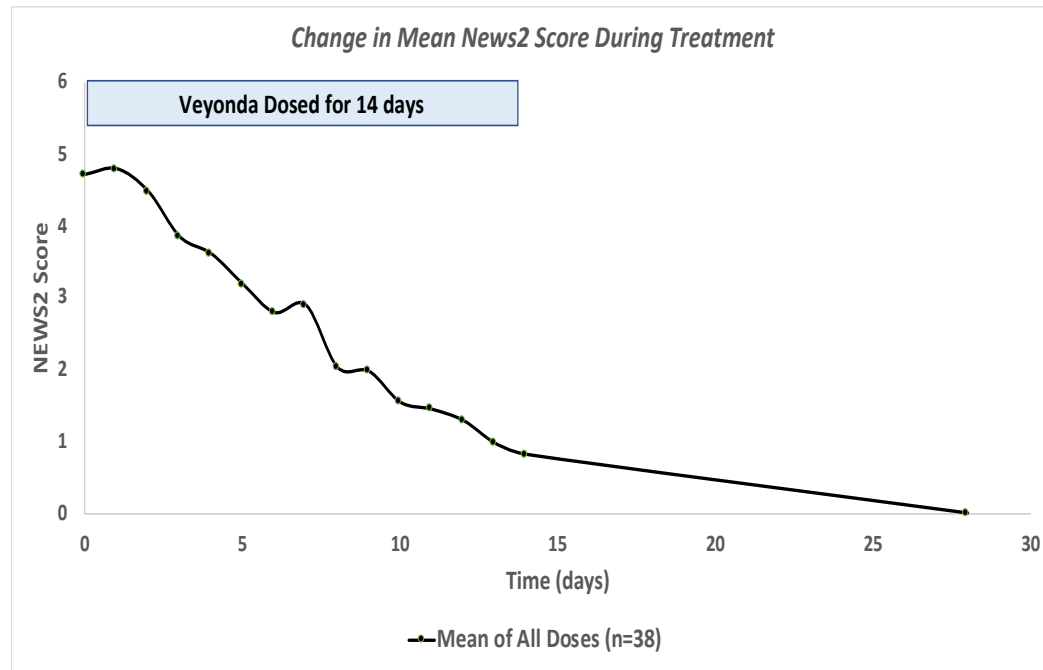
- Promising results have been published in peer-reviewed medical journals:
 - Any PSA reduction in 86% of patients
 - PSA fall of >50% in 61% of patients
 - Median Overall Survival of 19.7 months
- Discussions regarding potential trial at a European site are currently underway





NOXCOVID Trial

- Results of NOXCOVID-study were very encouraging
- Negotiations with other COVID research teams are ongoing
- We will not proceed without non-dilutive funding



Clinical Portfolio - Key Takeaways

We have 3 exciting ongoing studies

DARRT-2

- Our biggest study to date
- Building on DARRT-1 with a more intense treatment
- Prestigious hospitals are participating

IONIC

- Our proof-of-concept study with a unique combination (Opdivo, BMS)
- Multiple cancer types
- Investigator Initiated Study conducted in Australia

CEP-2

- Our study in a rare cancer type (sarcoma)
- Urgent need for new treatments in sarcoma
- Enthusiastic investigators participating in this study

Based on previous studies we are highly encouraged and anticipate that

- Veyonda will stop disease progression
- Veyonda will improve Pain and Quality of Life
- Veyonda will continue to be safe and well tolerated

Veyonda - increasing value for every stakeholder



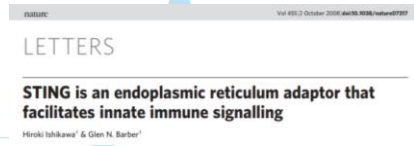
Thank you!



Introduction to Pharmorage

Dr Olivier Laczka Group CSO

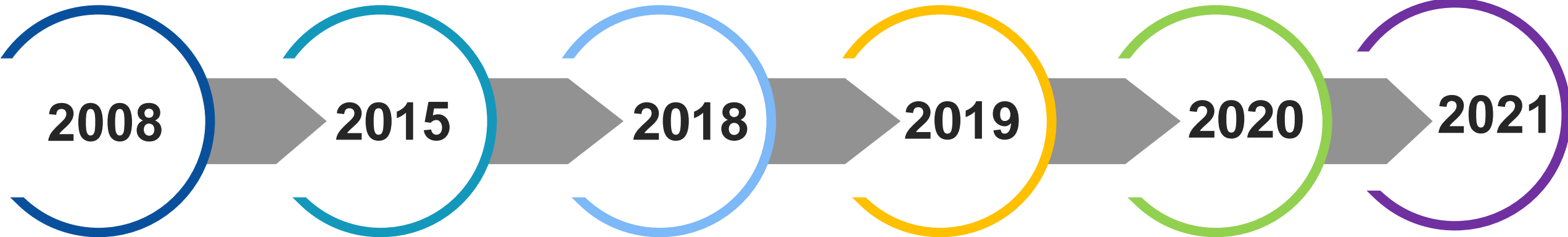
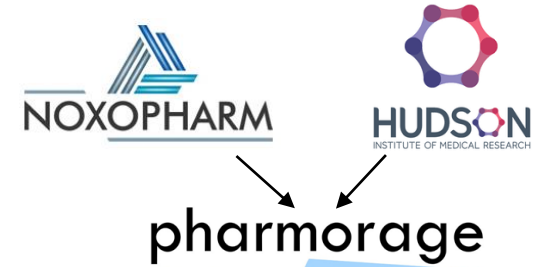
The genesis



Published: 25 November 2015
STING: infection, inflammation and cancer
 Glen N. Barber
Nature Reviews Immunology 15, 760–770(2015) | Cite this article



Drug developers switch gears to inhibit STING
 Several biotechs are exploring STING inhibitors as a means to control innate immunity and inflammation.
NATURE BIOTECHNOLOGY | VOL 37 | MARCH 2019 | 199–208 | www.nature.com/naturebiotechnology



2008
 STING protein is discovered (Stimulator of Interferon Genes)

2015
 STING pathway is confirmed as a major player in a broad range of diseases

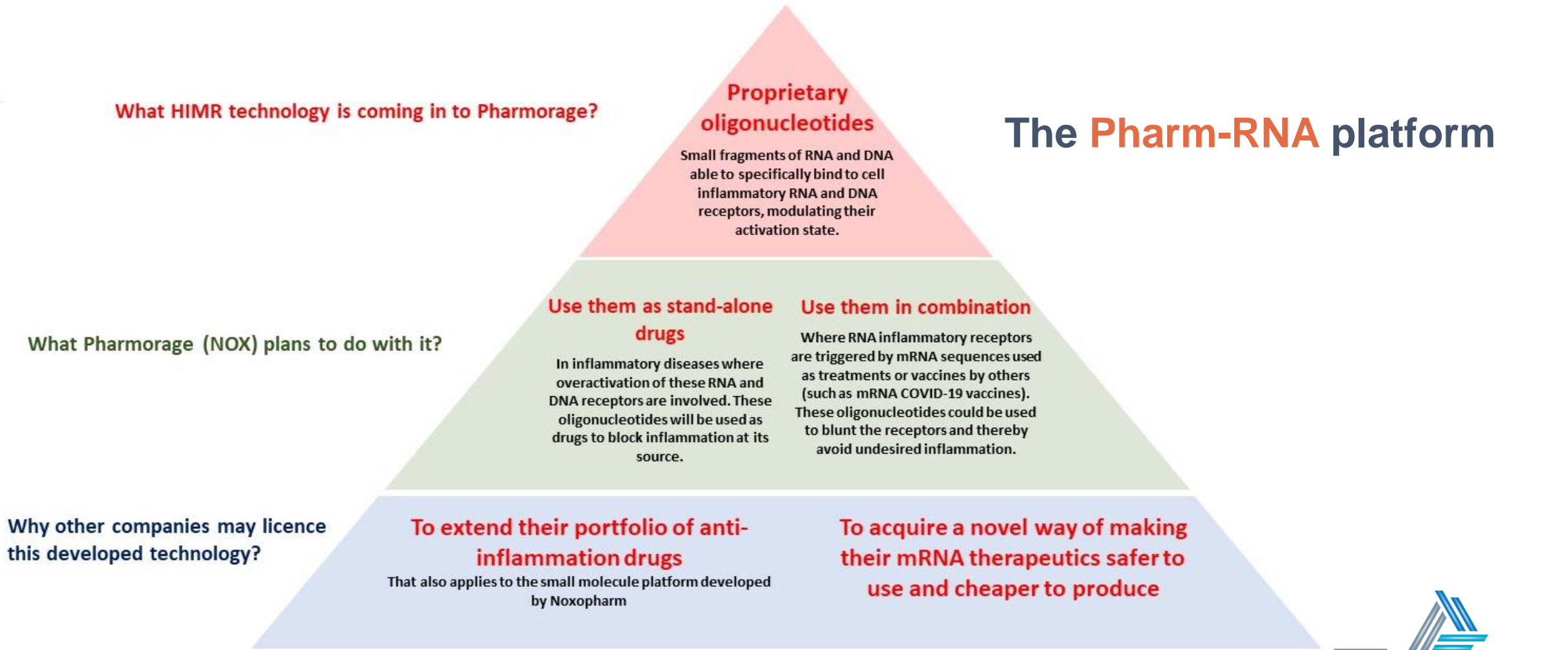
2018
 Big pharma enter the race to develop STING pathway agonists as immunotherapies for cancer

2019
 Big pharma start realizing that STING inhibition has huge potential to treat inflammatory and autoimmune diseases

2020
 IDX is confirmed as a strong antagonist of the STING pathway by M. Gantier
 Formal collaboration with the Hudson institute is established and Pharmorage is created

2021
 Pre-clinical data supports IDX is targeting Sting pathway
 Pharmorage in-licenses Hudson's RNA technology platform

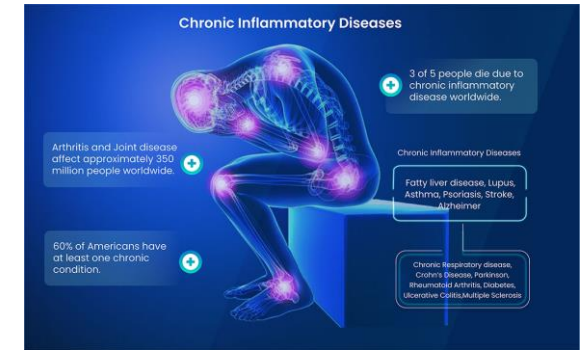
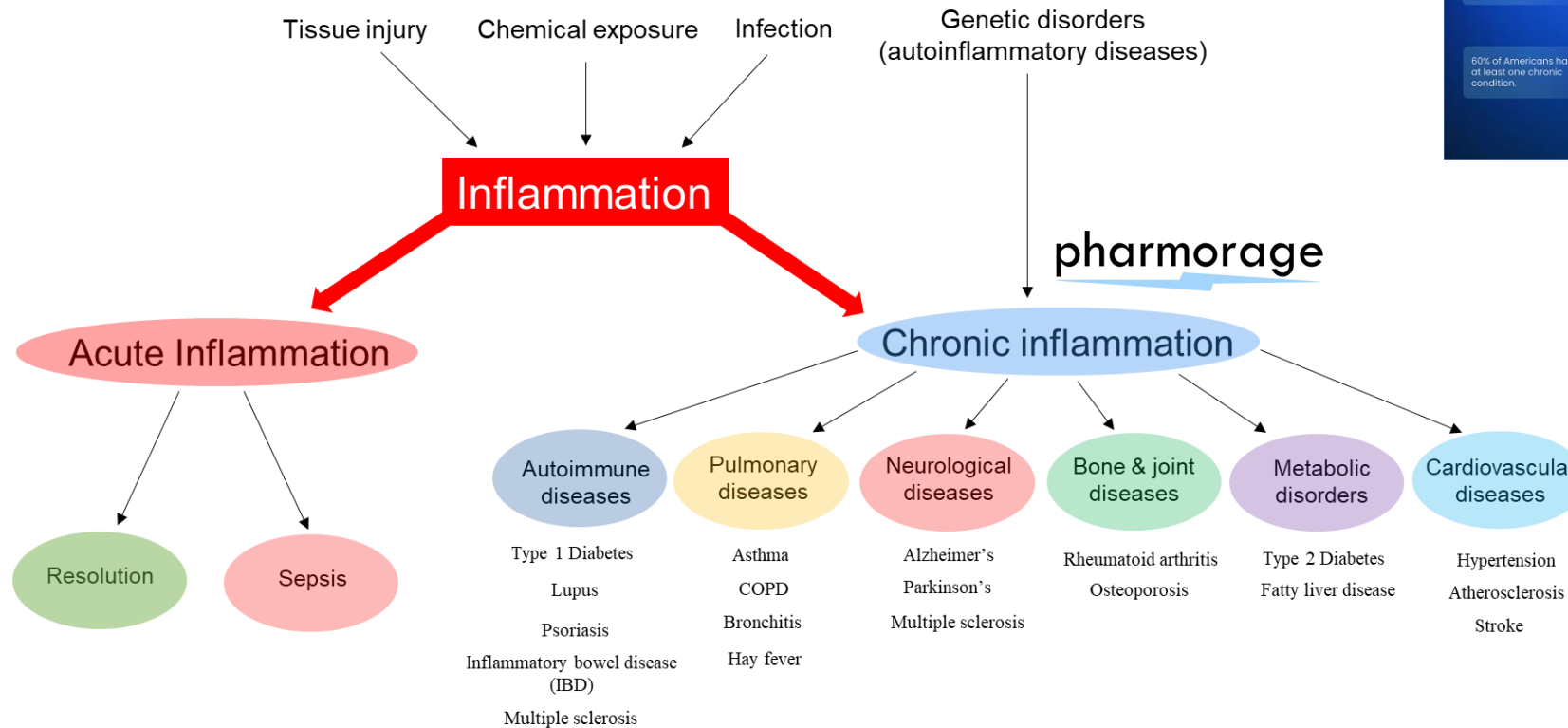
The HIMR In-licenced RNA technology platform



The Pharm-RNA platform

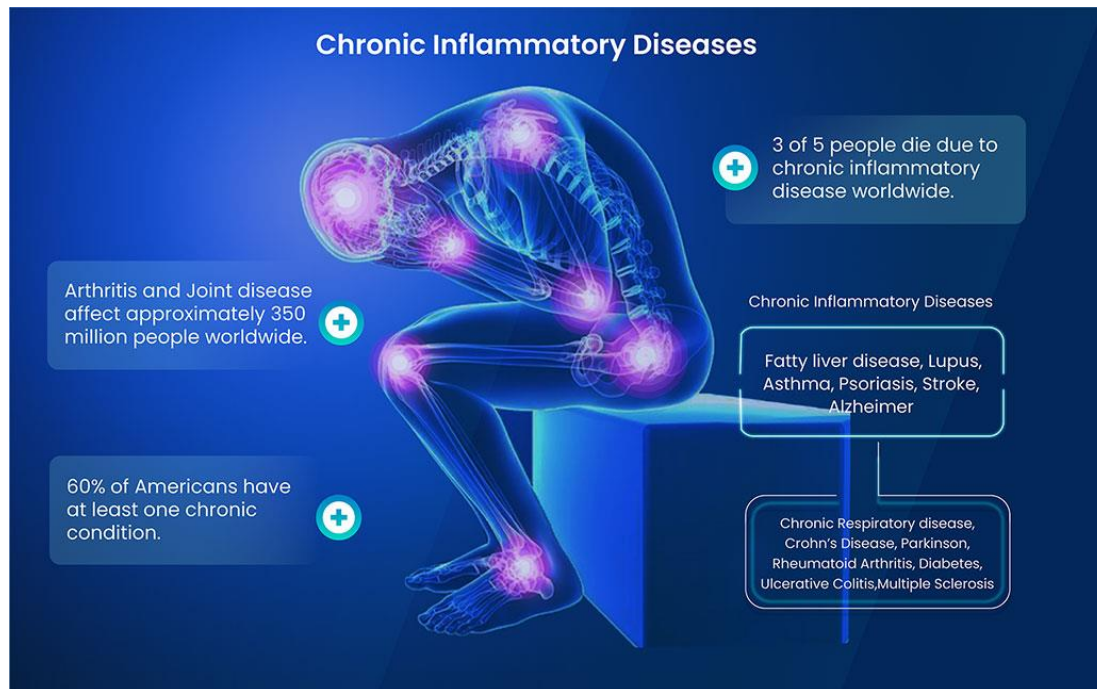
The Pharmorage concept

Inflammation, chronic inflammation, autoimmune diseases: Where do we position ourselves?

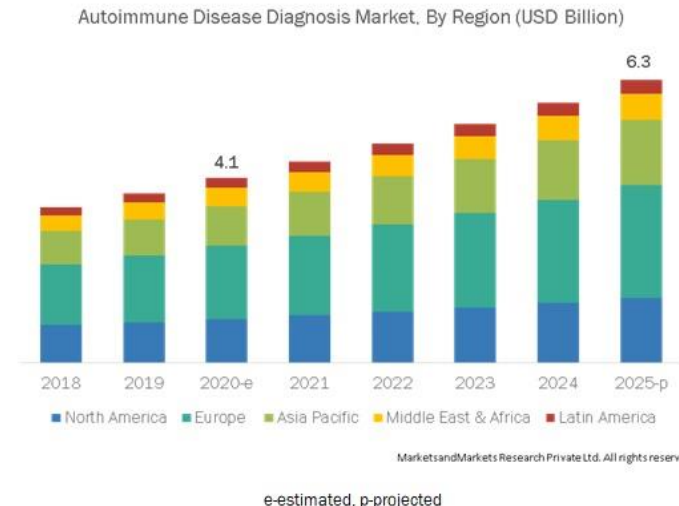
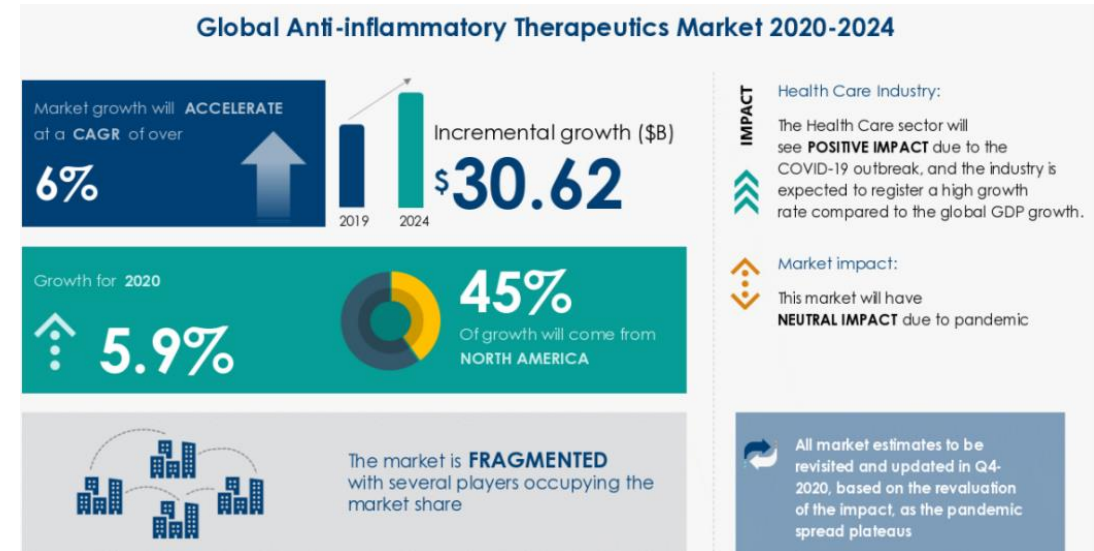


The opportunity: a large market in expansion

The growing autoimmune and chronic inflammation market



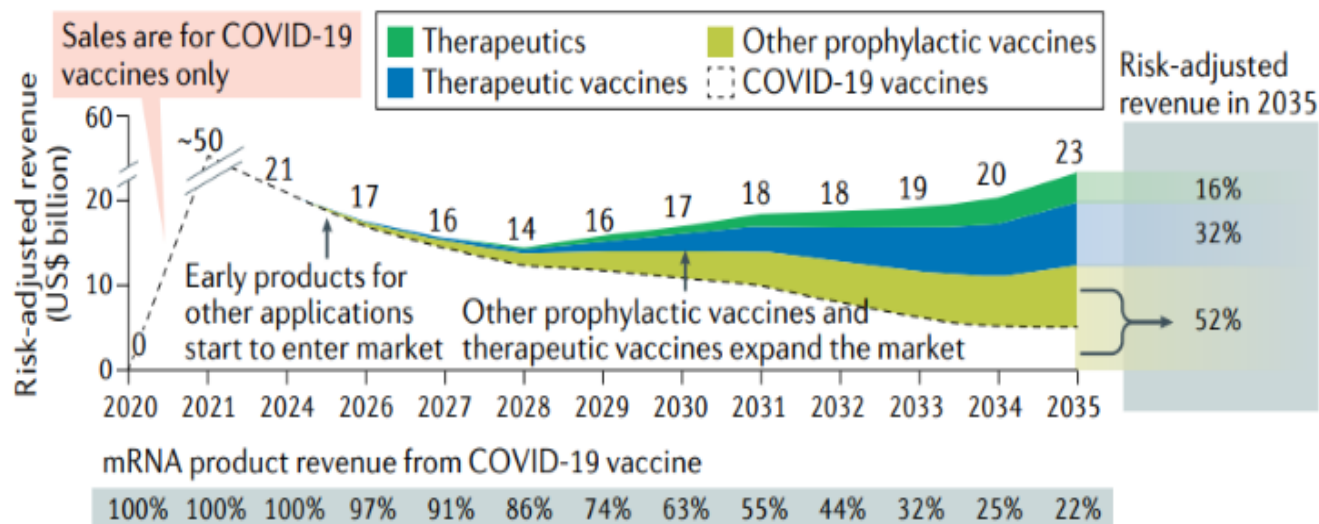
<p>3</p> <p>of the top-selling treatments in 2016 were immuno-inflammation therapies (Humira, Enbrel, Remicade)</p>	<p>\$56 billion</p> <p>in immuno-inflammation sales in 2017</p> <p>USD\$</p>	<p>2017</p> <p>Introduction of the first small kinase-inhibitor molecule in Europe as a therapy for rheumatoid arthritis</p>	<p>\$9.1 billion</p> <p>Sales forecasts for JAK kinase inhibitors in 2023, compared with \$1.4 billion in 2017</p> <p>USD\$</p>
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The added opportunity: the mRNA therapeutics sector

Pharmorage does **NOT** focus on developing mRNA therapeutics (drugs and Vaccines), but its synthetic RNA platform and pipeline is tailored to support the future development of these technologies by other companies

The Pharm-RNA platform represents a great opportunity for pharma companies to get ahead in the mRNA therapeutics development race by potentially reducing their inflammatory side-effects



- COVID-19 vaccines are projected to make up most of the mRNA market until 2025.
- Other prophylactic vaccines, therapeutic vaccines, and therapeutics will then become larger shares.
- The mRNA market is forecast to be **USD\$23 billion by 2035**.

Source: Nature Reviews Drug Discovery, "Evolution of the Market for mRNA Technology" (September 2, 2021)

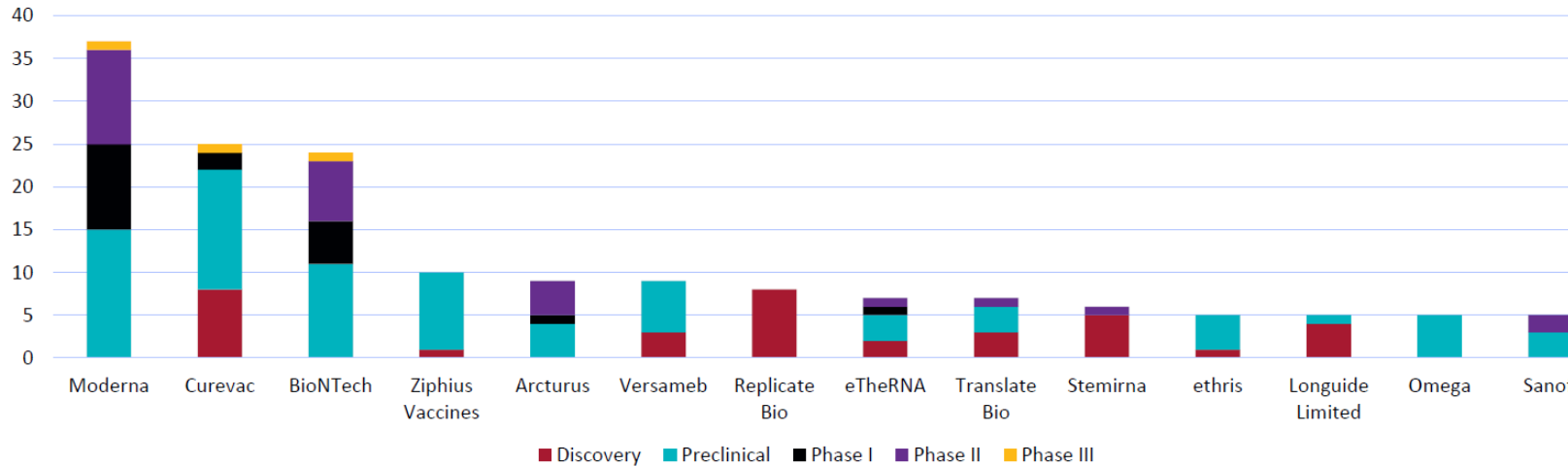
A forecast for the evolution of the market for mRNA technology.

The added opportunity: the mRNA therapeutics sector

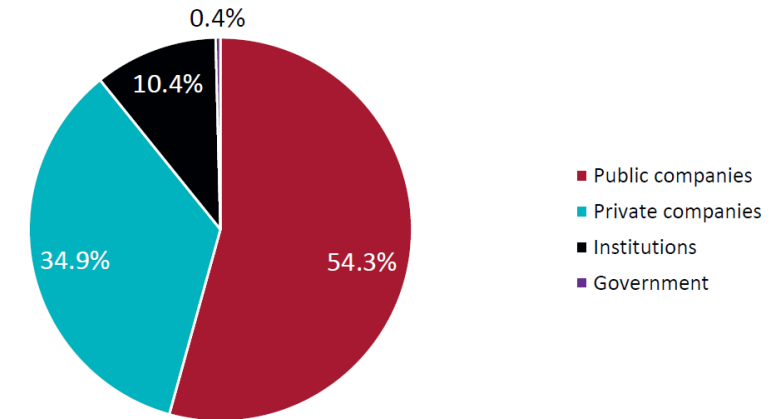
The raise of the Oligonucleotide therapeutics era, a launch pad for our in-licensed Pharm-RNA platform

There are currently 104 sponsors that combine for 241 active mRNA pipeline projects. Below are the companies that have at least five pipeline projects. Moderna (37), Curevac (25), and BioNTech (24) have the most.

mRNA Pipeline Projects by Company by Development Stage



More than one half (54%) of current mRNA pipeline projects are sponsored by public companies.



Source: GlobalData Drugs Database search (10/1/21)

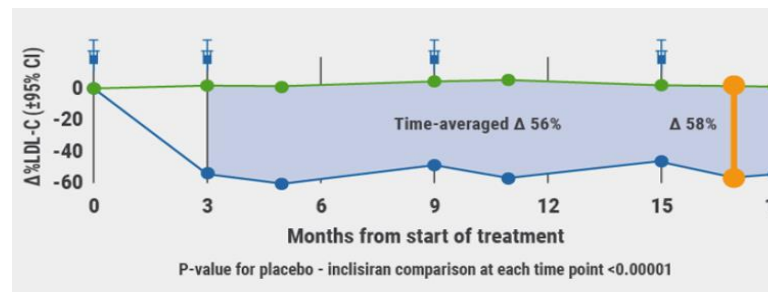
The added opportunity: oligonucleotide therapeutics

The raise of the Oligonucleotide therapeutics era, a launch pad for our in-licensed Pharm-RNA platform

Table 1 | FDA-approved oligonucleotide therapeutics

Name (market name), company	Target (indication)	Organ (ROA)	Chemistry (modality)	FDA approval	Comments
Fomivirsen (Vitravene), Ionis Pharma, Novartis	CMV UL123 (cytomegalovirus retinitis)	Eye (IVI)	21mer PS DNA (first-generation ASO)	August 1998	First approved nucleic acid drug Local delivery Withdrawn from use owing to reduced clinical need
Pegaptanib (Macugen), NeXstar Pharma, Eyetech Pharma	VEGF-165 (neovascular age-related macular degeneration)	Eye (IVI)	27mer 2'-F/2'-OMe pegylated (aptamer)	December 2004	First approved aptamer drug Local delivery Limited commercial success due to competition
Mipomersen (Kynamro), Ionis Pharma, Genzyme, Kastle Tx	APOB (homozygous familial hypercholesterolaemia)	Liver (SQ)	20mer PS 2'-MOE (gapmer ASO)	January 2013	Rejected by EMA owing to safety Limited commercial success due to competition
Defibrotide (Defitelio), Jazz Pharma	NA (hepatic veno-occlusive disease)	Liver (IV)	Mixture of PO ssDNA and dsDNA	March 2016	Unique sequence-independent mechanism of action
Eteplirsen (Exondys 51), Sarepta Tx	DMD exon 51 (Duchenne muscular dystrophy)	Skeletal muscle (IV)	30mer PMO (steric block ASO)	September 2016	Systemic delivery to non-hepatic tissue Low efficacy
Nusinersen (Spinraza), Ionis Pharma, Biogen	SMN2 exon 7 (spinal muscular atrophy)	Spinal cord (IT)	18mer PS 2'-MOE (steric block ASO)	December 2016	Local delivery
Patisiran (Onpattro), Alnylam Pharma	TTR (hereditary transthyretin amyloidosis, polyneuropathy)	Liver (IV)	19+2mer 2'-OMe modified (siRNA LNP formulation)	August 2018	First approved RNAi drug Nanoparticle delivery system Requires co-treatment with steroids and antihistamines
Inotersen (Tegsedi), Ionis Pharma, Akcea Pharam	TTR (hereditary transthyretin amyloidosis, polyneuropathy)	Liver (SQ)	20mer PS 2'-MOE (gapmer ASO)	October 2018	Same gapmer ASO platform as mipomersen
Givosiran (Givlaari), Alnylam Pharma	ALAS1 (acute hepatic porphyria)	Liver (SQ)	21/23mer Dicer substrate siRNA (GalNAc conjugate)	November 2019	Enhanced stability chemistry Hepatocyte-targeting bio-conjugate
Golodirsen (Vyondys 53), Sarepta Tx	DMD exon 53 (Duchenne muscular dystrophy)	Skeletal muscle (IV)	25mer PMO (steric block ASO)	December 2019	Same PMO chemistry platform as eteplirsen

Roberts et al. Nat. Rev. Drug Disc. 2020



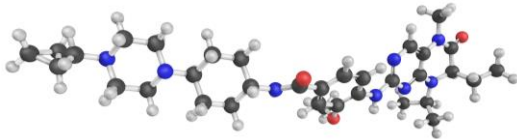
Oligo therapeutics targeting hypercholesterolemia acquired for USD\$9B by Novartis – recently approved by EU. It only needs **6 monthly injections**.

Our technologies and assets

Two platforms with 3 preclinically advanced drug candidates

Technology platforms

**Small molecules (Pharm-ISO)
(From Noxopharm)**



**In-licenced synthetic RNAs (Pharm-RNA)
(From HIMR)**



Most advanced drug candidates

- TBK1 Inhibitor lead compound selection (Pharm-ISO-1)

Lead drug candidate selection phase

- TLR7-suppressive oligonucleotides (Pham-RNA-7)
- cGas oligonucleotides (Pham-RNA-G)

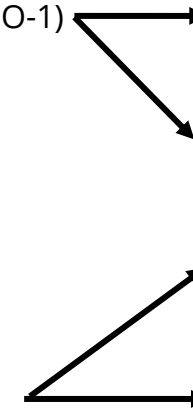
Both in *in vivo* testing phase

Application areas

Infection-driven inflammation

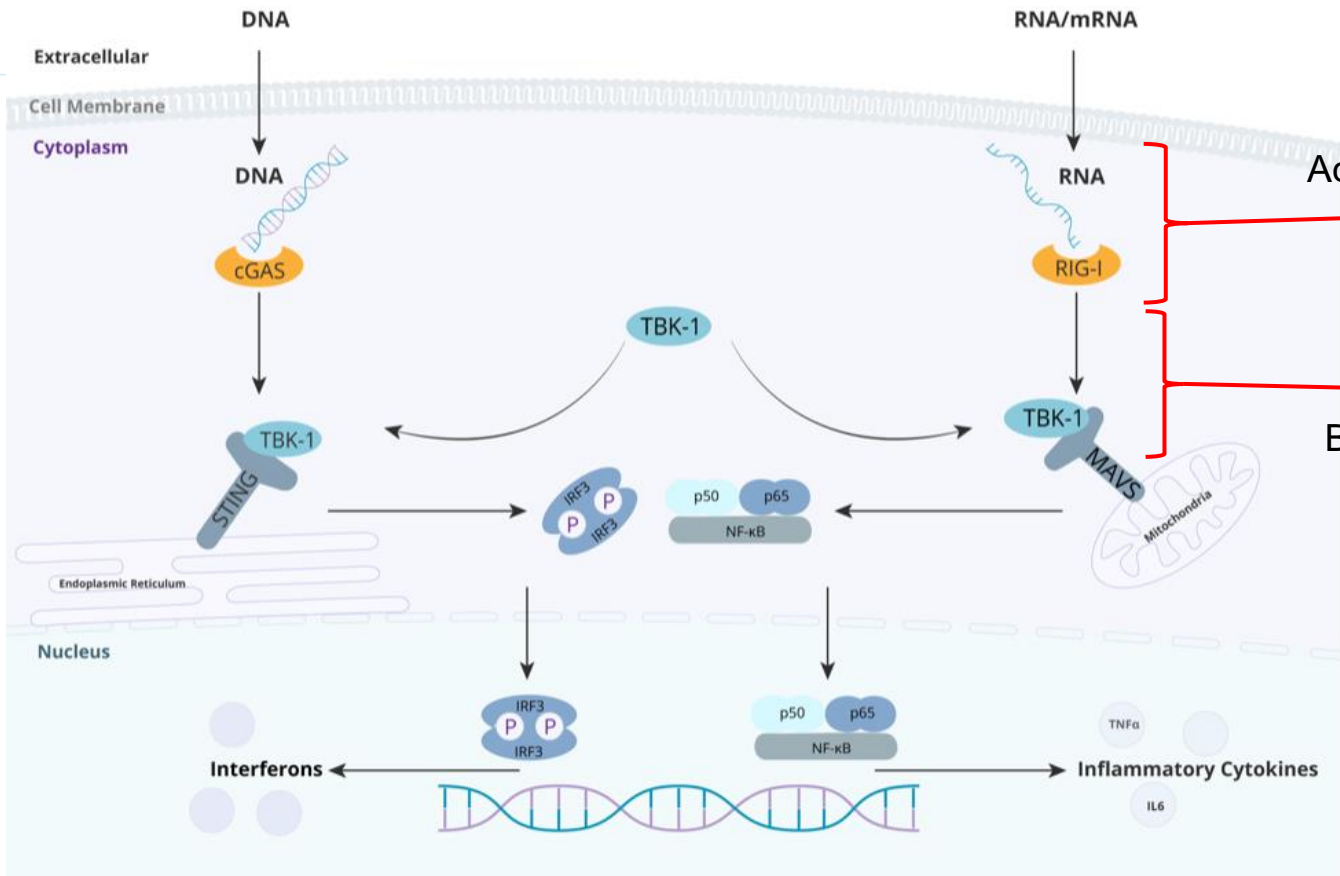
Autoimmune diseases and chronic inflammatory disorders

Improvement of mRNA therapeutics, including mRNA vaccines



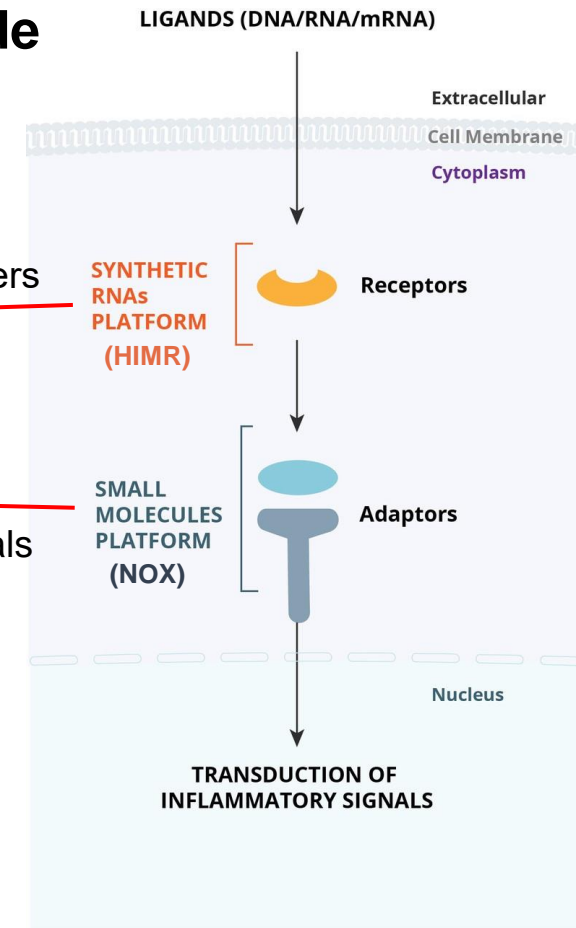
Our technology and assets

Two platforms each targeting different level of the inflammation cascade



Acts on specific inflammation triggers

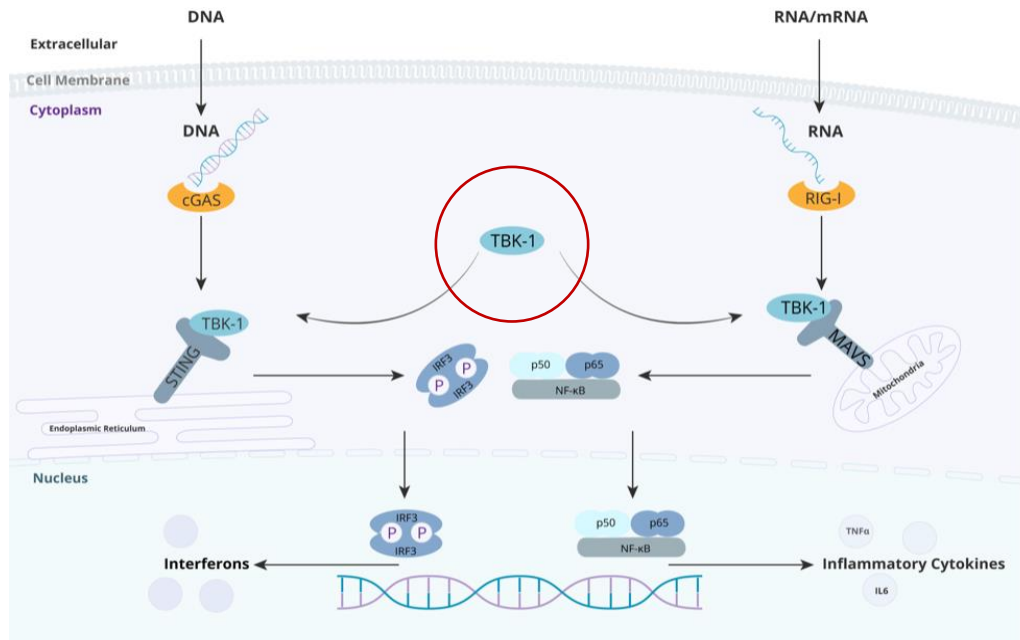
Blunts multiple inflammation signals



A couple of practical examples

An infection with an RNA virus (such as SARS-COV2), with associated tissue damage releasing self-DNA

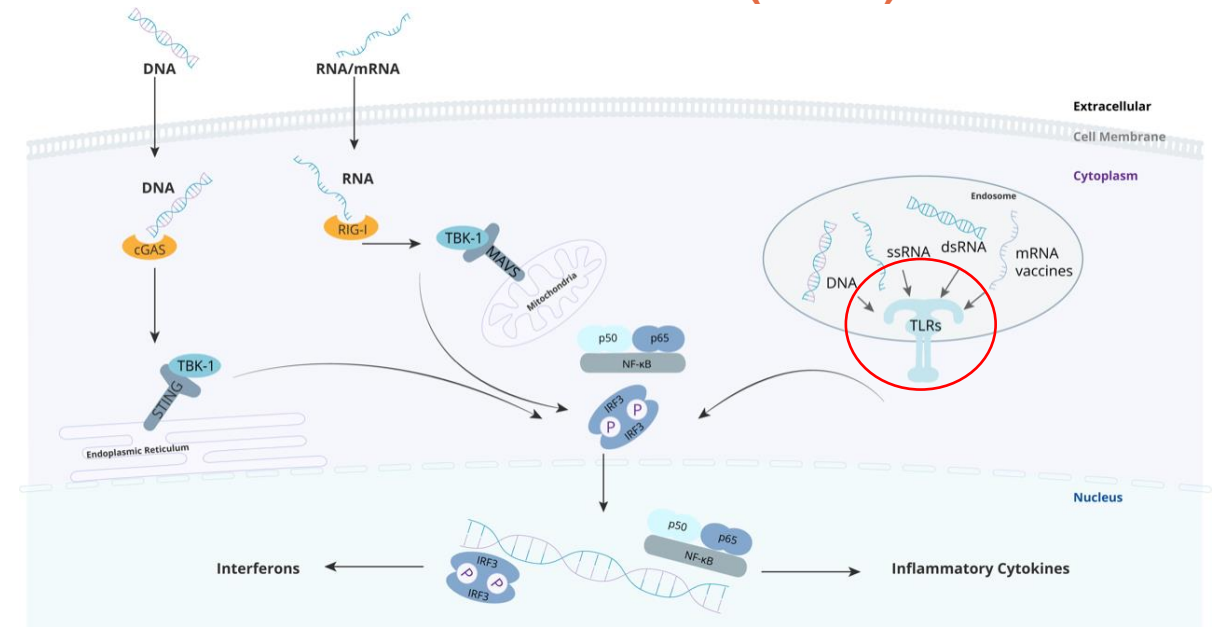
Pharm-ISO (NOX)



No point in trying to block one receptor, a broader approach on adaptor proteins will be more effective

An acquired, mRNA-stimulated, or genetic autoimmune inflammation disease due to an overactivated inflammation TLR7 receptor

Pharm-RNA (HIMR)



Inhibiting the TLR7 receptor is the strategy

Technical Glossary

mRNA: messengerRNA (mRNA) is a single-stranded RNA molecule that is complementary to one of the DNA strands of a gene. The mRNA is an RNA version of the gene that leaves the cell nucleus and moves to the cytoplasm where it gets read to generate proteins.

Oligonucleotides: oligonucleotides, or oligos, is a general term to describe nucleic acid sequences comprised of about three to twenty nucleotides. These molecules represent the in-licensed Pharm-RNA technology from Hudson Institute of Medical Research (HIMR). They are short DNA or RNA molecules that serve as the starting point for many molecular biology and synthetic biology research applications. Pharmorage's Pharm-RNA oligonucleotides can be considered as having drug-like compositions, targeting specific inflammation receptors.

Inflammatory disease: a general term that applies to autoimmune diseases and chronic conditions in which a person's immune system, instead of attacking bacteria, viruses or other sources of infection changes to attack the body's own tissues

Autoimmune disease: there are more than 80 autoimmune diseases but familiar autoimmune inflammatory diseases include multiple sclerosis, psoriasis and some forms of lupus

TBK1: (TANK-binding kinase 1) is an enzyme with kinase activity. Specifically, it is a serine / threonine protein kinase. It is encoded by the TBK1 gene in humans. This kinase is mainly known for its central role in innate immunity antiviral response. However, TBK1 also regulates cell proliferation, apoptosis, autophagy. Insufficient regulation of TBK1 activity leads to autoimmune and neurodegenerative diseases.

Small molecules: within the fields of molecular biology and pharmacology, a small molecule is a low molecular weight organic compound that may regulate a biological process by binding to a protein target, thereby modulating its activity. Many pharmaceutical drugs are small molecules.

Pharm-RNA: Pharmorage's synthetic RNA (or oligonucleotide) technology platform. This platform comes from HIMR and is focused on the development of synthetically engineered RNA fragments able to bind to the cell's first line of inflammatory sensors, to either block or trigger their activity.

Pharm-ISO: this platform comes from Noxopharm's non-oncology research stream. Pharmorage's small molecule technology platform focuses on the design of small molecules able to modulate inflammation at the adaptor level of the signaling pathway. These small molecules are designed to interact with key proteins targets (such as TBK1) situated at the crossroads of multiple inflammatory signals.

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