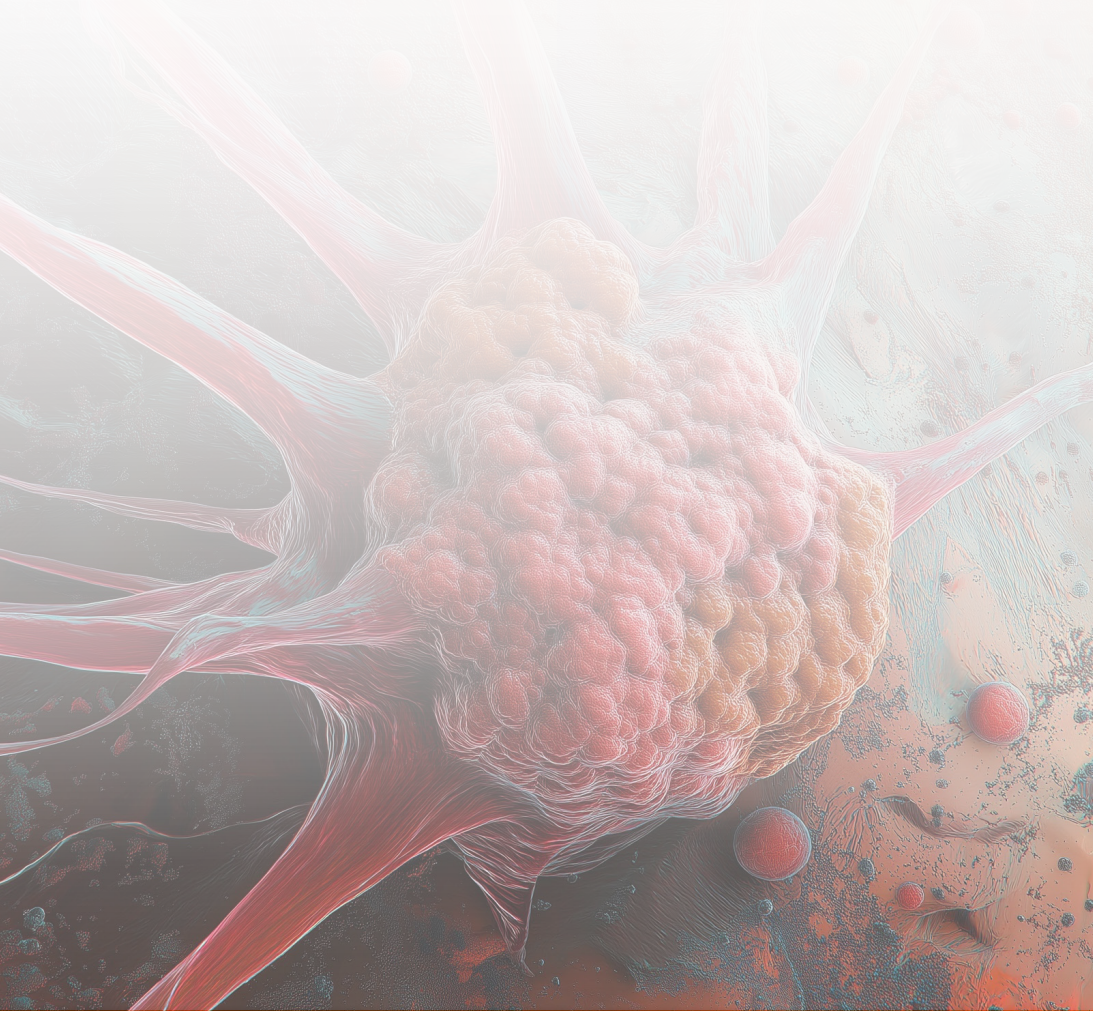


QCX for cancer vaccine

Using Ncapsulate QCX induces up to 2.000 fold increase in protein expression compared to reference oncology formulation solutions

Quantoom is collaborating with Memorial Sloan Kettering Cancer Center to integrate QCX-002 into leading personalized cancer therapies.



Our company

Quantoom Biosciences is a full-stack RNA partner for mRNA- and saRNA-based vaccines and therapeutics. Its **N-force** toolbox relies on 3 core elements to turn any antigen into a (sa)mRNA-LNP drug product: **Ncode** for sequence design and optimization, **Ntensify**® for RNA production and **Ncapsulate**® for RNA-LNP formulation. Launched in 2023, the **Ntensify** solution enables fully integrated, scalable RNA production by combining processes, equipment, reagent mixes, and disposables and has gained global adoption, being recognized for performance and ease-of-use. Beyond technology, Quantoom Biosciences assists its partners by providing extensive enabling solutions, ranging from strategic R&D partnerships to sequence design & optimization.

BELGIUM

Quantoom Biosciences Headquarters.
Showroom for Ntensify® technologies.

Visit our website



www.quantoom.com

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BELGIUM

Get in touch!

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🌐 www.quantoom.com

Trusted by



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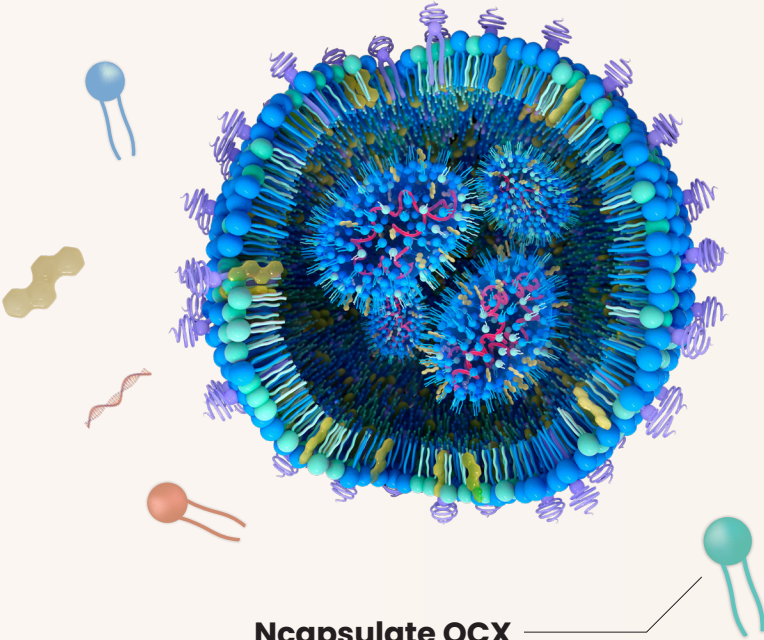
Member of



Ncapsulate[®]QCX

Transforming RNA drug delivery

Delivery chemistry
for next-generation LNP formulation



Ncapsulate QCX

Demonstrated
track record in

Prophylactic
Vaccines

Veterinary
Vaccines

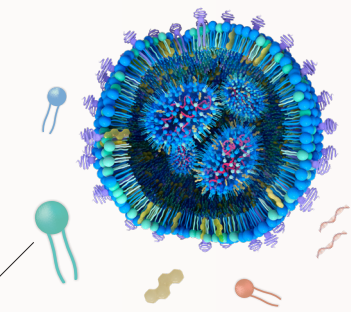
Oncology

Ncapsulate[®]QCX

Proprietary delivery chemistries

Quantoom has developed a new class of lipid-like molecules (called QCX) with adaptable heads and interchangeable tails, allowing for customization to achieve specific functionalities. These QCXs can be assembled into an LNP

Ncapsulate QCX
Membrane fusion
Endosomal escape



Our patented lipid-like Calixarene opens new sustainable possibilities for RNA delivery and is proven to have high performance for both mRNA and saRNA in prophylactic vaccines, animal health and oncology.

WHAT WE OFFER

Fast track
Ready-to-use QCX-002

Our validated and high-quality QCX-002 candidate is readily available for applications in research use only.

HOW TO COLLABORATE

Tailored LNP
Development

Custom LNP development to identify suitable QCX chemistry for specific RNA delivery needs.

QCX for RNA vaccines

Representative performances of a formulation using our QCX-002 based LNP. 2 setups were considered : formulation meant for human mRNA vaccination and formulation meant for veterinary saRNA vaccines.

	Human mRNA vaccines	Veterinary saRNA vaccines
Size (nm)	62	70
Charge (mV)	10.91	8.71
PDI	0.102	0.177
RNA content (µg/mL)	316	64
%EE	97	82
RNA integrity (%)	90.3	85.2
pH	NA	7.5
Endotoxins (EU/mL)	<1	<1

Rabies vaccine candidate shows high immunogenicity in mice

PROTOCOL
An mRNA sequence encoding a rabies-based G protein was designed and produced using Quantoom's Ncode & Ntensify platforms. LNP formulation leveraged Quantoom's QCX-002 («UQTM-LNP») or a two different reference LNP's (Ref.1 & Ref.2). Mice were injected at D0 and D15 with 2.5µg of mRNA-LNP or with PBS («negative control»). Blood sampling and VNT measurement at D35.

RESULTS
Our formulation yields VNT well above the WHO correlate of protection.
The neutralizing titer is comparable to commercially available references.
No adverse results were observed in weight or organ size (data not shown).

After boost dose (D35)

Group	Log10 Neutralizing titer (approximate values)
Negative control	0.2, 0.3, 0.4
Ref.1	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000
Ref.2	15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000
UQTM LNP	100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000

Request our QCX-002 trial Kit

- Provided ready-to-use for RUO
- Contain 4 components, incl. QCX-002
- Have component ratios tailored to their respective applications
- Have demonstrated performance
- Can be provided to formulate 1mg or 100 mg of DS RNA

- Lipid mix is stored in -80°C, Formulation buffer stored at 4°C, both in liquid form with an expiry target date of 2y (Stability ongoing)
- Released based on composition and functional testing for target CQAs range (size, charge, etc)

AS AN OFF-THE-SHELF KIT

KIT 1

- Ratios A
- mRNA
- Intramuscular and In-vitro

KIT 2

- Ratios B
- saRNA
- Intramuscular

KIT 3

- Ratios C
- mRNA
- Intravenous

Your kit

- Custom ratios
- mRNA or saRNA
- Intramuscular, intravenous, or intradermal

QCX-002

Your kit

- Fully tailored

Can be used to formulate either 1 mg or 100 mg of DS RNA

CONTENT

Documentation

- Protocol with DSP recommendations
- CoA, TSE/BSE, endotoxin reports

KIT reagents

- KIT reagents
- Formulation buffer 1x

RAW MAT reagents

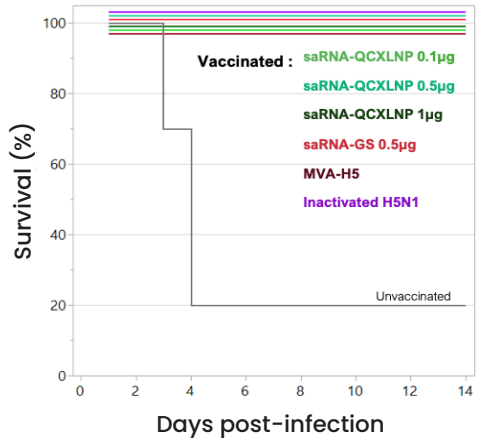
- QCX-002

saRNA-QCX vaccination triggers 100% survival and protection of shedding

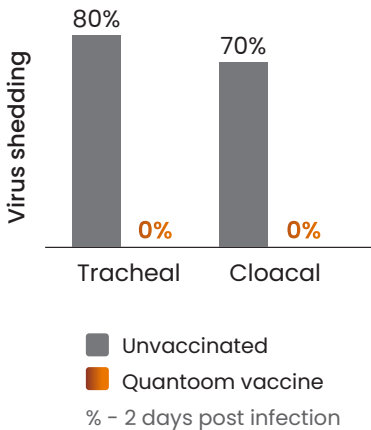
In collaboration with
VaxThera

A challenge study in 70 chickens using a currently circulating H5N1 strain demonstrated 100% survival in all vaccinated animals, even at the lowest dose, with no viral transmission observed, as evidenced by the absence of shedding. The saRNA mosaic vaccine candidate was fully designed, produced, and formulated by Quantoom.

100 % survival in vaccinated chickens



100 % shedding protection



QCX-LNP: Quantoom's proprietary delivery technology
GS: Golden Standard delivery technology

ACHIEVEMENTS ON QCX & ONGOING DEVELOPMENTS

Raw mat quality development
Production at high-quality grade

► **CMC for GMP**

Raw mat quality development
4°C > 3 months for mRNA
-80°C > 3 months for mRNA and saRNA

► **Room temperature**
Min 37 °C – Max 45°C

Raw mat safety development
Organ weight
Clinical observation

► **Toxicity studies**
Biodistribution