

How can Ntensify™ help with your mRNA production scale-up?

Mairesse B., De Lamotte A., Kallel H., Harvengt P., and Castillo J.

Introduction

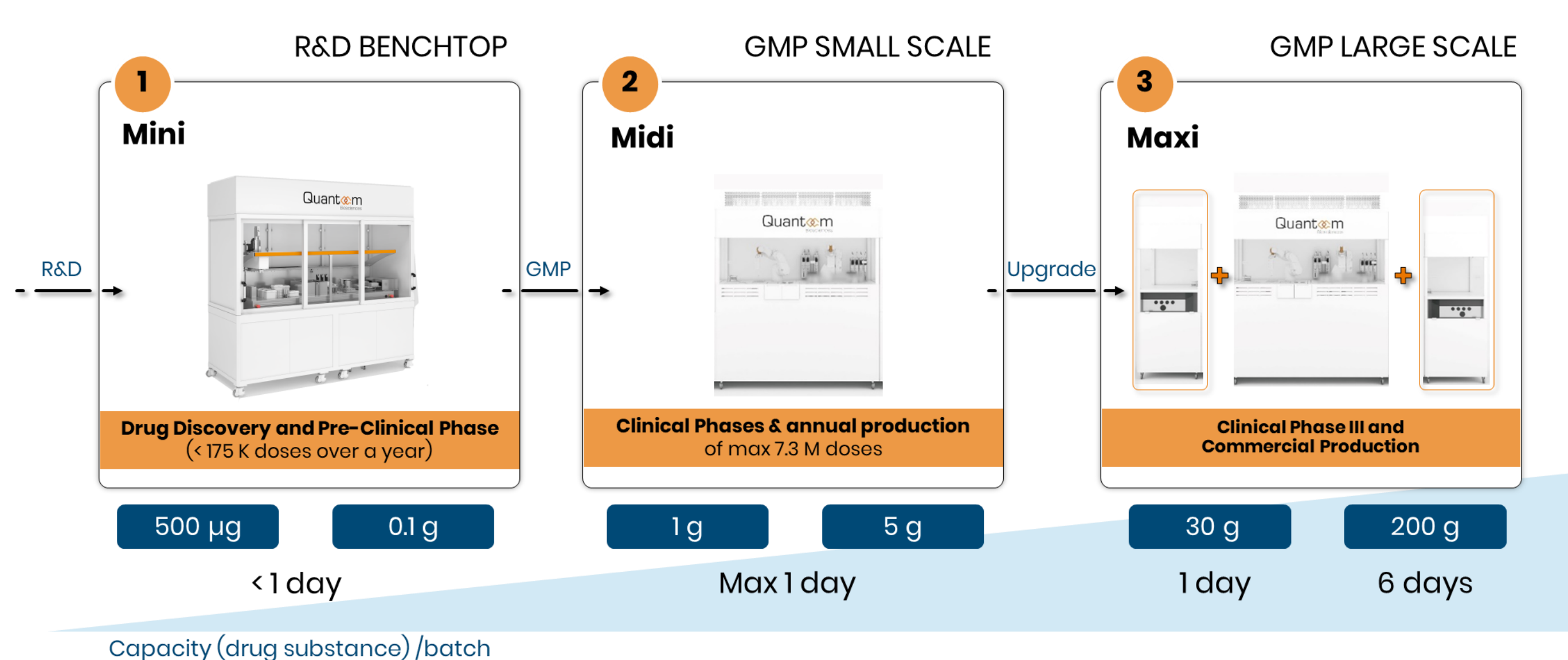
Rationale

Our mRNA Production

- 1 Optimal IVT
- 2 Simple single-step purification

Technology

Three models covering needs from R&D to commercial production



Both GMP models operate an IVT reaction volume of 20 mL per cavity. The large-scale enables mass production via sequential-staggered production.

R&D model supports either high-throughput RNA screening (up to 192 constructs per run) or small-scale production (up to 100 mg per batch).

Optimal process

IVT process developed and transferred from partner eTheRNA Therapeutics¹.



Best performance guaranteed with our ready-to-use reagent mixes at the right concentration and ratio, available in bags for ease of use. The recipe is financially efficient for reagent consumption and RNA yield.

Generic process validated on multiple targets. Yet, if required, it can be adapted to specific sequences.

Optimal and without the requirement for optimization when entering large-scale manufacturing, as the production is based on sequential-staggered production of 20 mL reactions.

Process generating high-quality, pure RNA. This poster demonstrates low dsRNA contents.

Process performances

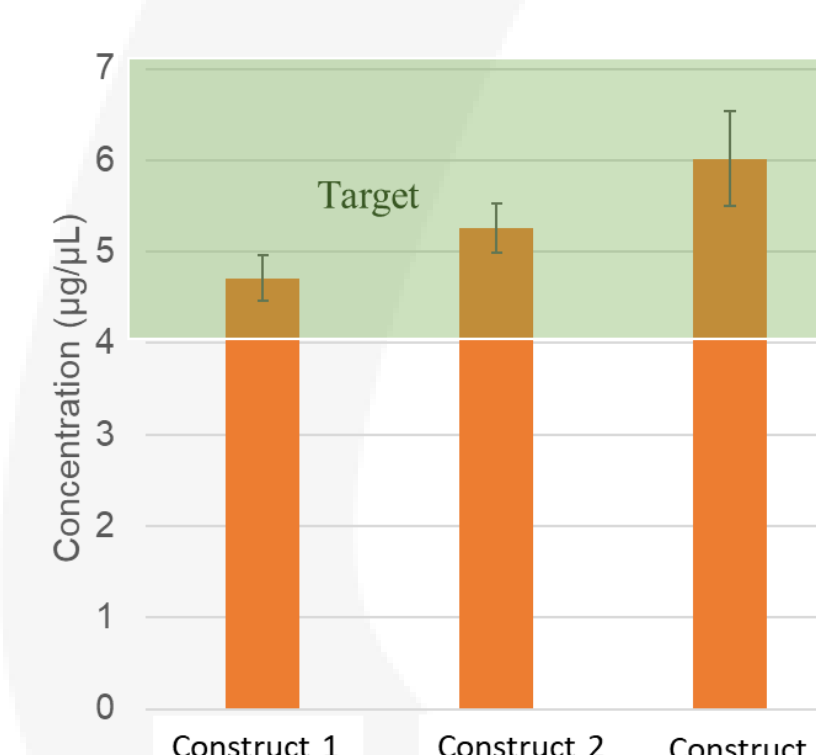
- Construct 1: 1,189 nucleotides
- Construct 2: 4,000 nucleotides
- Construct 3: 4,284 nucleotides

Scan for abstract

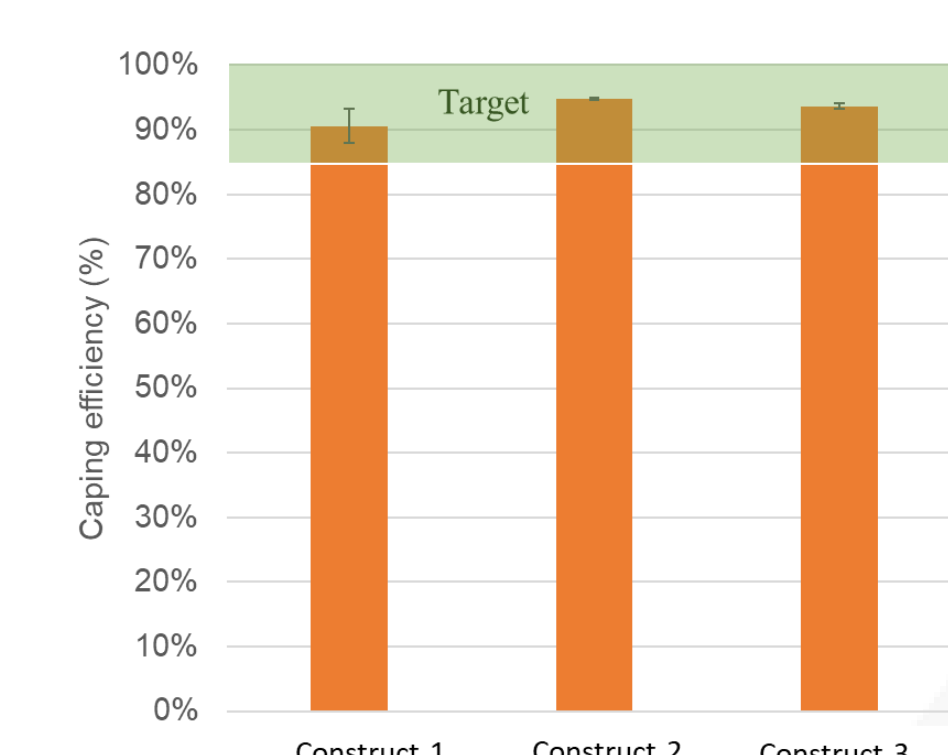


Characterization studies

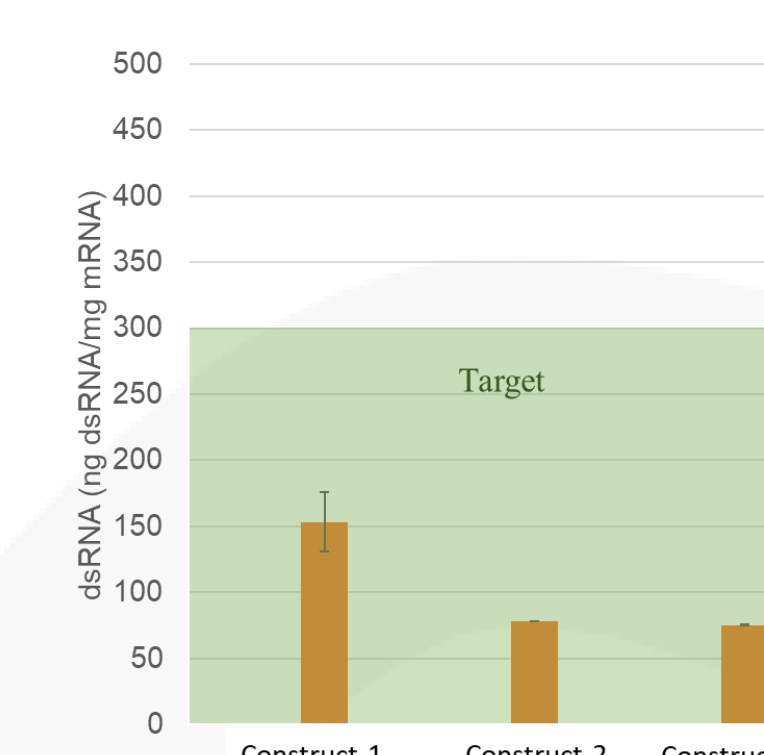
mRNA yield



Capping efficiency



dsRNA content



Key benefits

- High productivity + high quality (on multiple constructs)
- No scale-up beyond 20 mL required, saving time and money
- Ready-to-use reagent mixes
- Automated and low footprint machine
- Lower CoGs

Video Nfinity™



Conclusions

- Optimal IVT approach is a solution simplifying purification.
- The optimized composition of our IVT reaction mixes ensures high productivity (yield > 4 g/L) high capping efficiency (> 90%) and minimal dsRNA formation. In the current study, dsRNA level was < 150 ng dsRNA/mg RNA for all the constructs.
- mRNA production with Ntensify™ is seamless, without compromising quality.

Next step

Further developments aim to validate the system for multiple mRNA-based targets, including self-amplifying RNAs.

Contact us!

Quantom Biosciences

Rue de la maîtrise 11,
1400 Nivelles BELGIUM
info@quantom.com
www.quantom.com

b.mairesse@quantom.com
a.delamotte@quantom.com
h.kallel@quantom.com
p.harvengt@quantom.com

Acknowledgments

Hop M.
Finet O.
Hazard A.
Roelandts G.
Vandekerckove K.
García A.

References

1. Quantom Biosciences, 29th June 2021 [eTheRNA Immunotherapies and Quantom Biosciences Announce a Strategic Collaboration for the Development of a Novel RNA Production System](#)