Qprotyn
Simple. Safe. SubQ.

www.qprotyn.com

Qprotyn's Viscosity-Reduction Platform for Monoclonal Antibodies

HILOPRO® Technology

Formulating mAbs for High Concentration – Low Viscosity, SubQ Delivery

Our Leadership Team

Qprotyn Inc. is a Delaware Corporation founded in 2021 and is an authorized distributor representing BRL.

Lynn Hartung
President

Dr. Viren Sarin
Chief Science Officer

Janak Vadgama
BD & Marketing

Bhami's Research Laboratory is an Indian private limited company (BRL), founded in Mangalore in 2014.

Dr. Bhami Shenoy
Founder & Chief Scientist

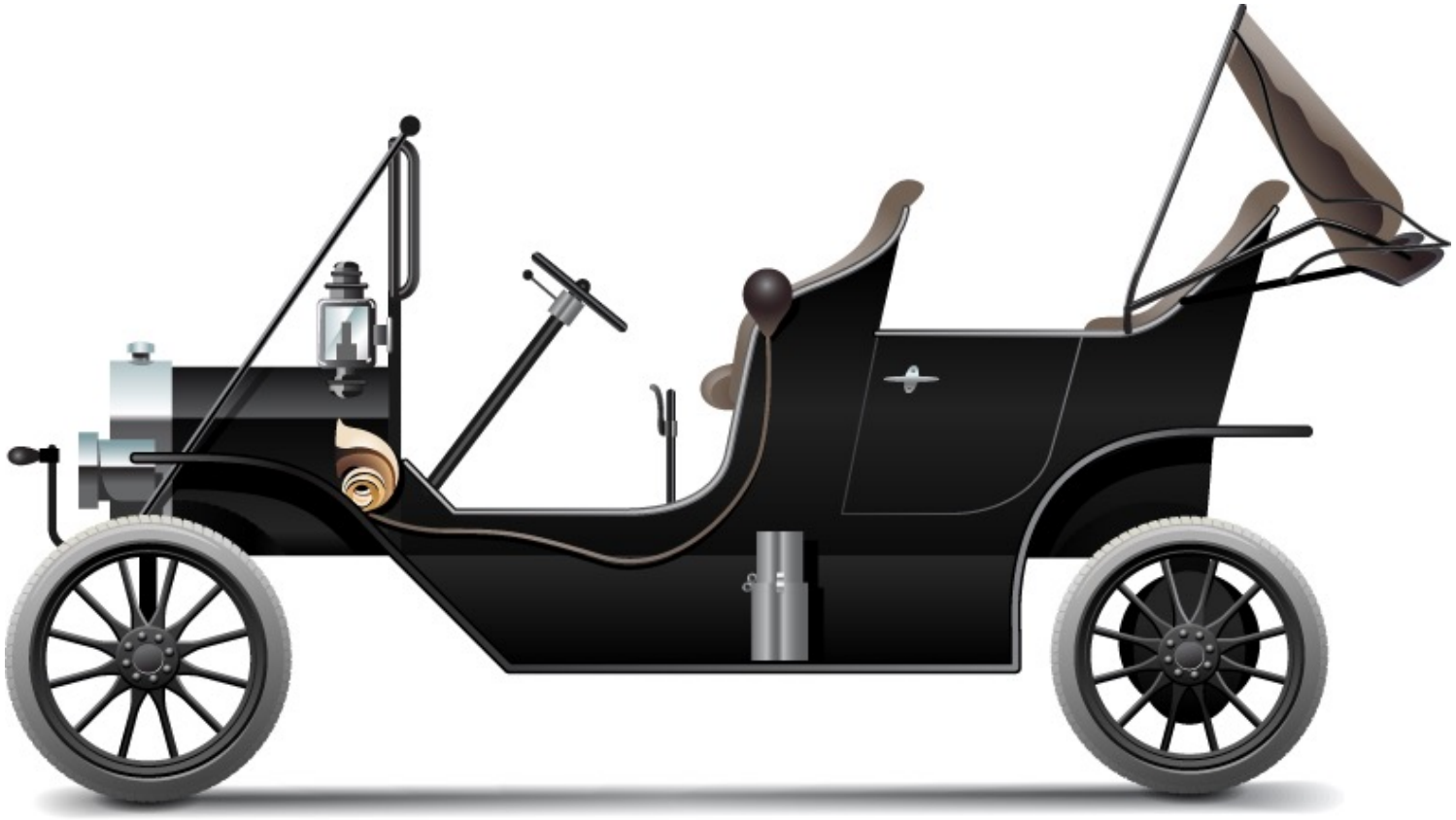
Dr. Surya Pai
Co-Founder & CEO

Advanced mAbs ...

Inebilizumab
Cemiplimab-rwlc
Avelumab
Sacituzumab govitecan-hziy
Naxitamab-gqgk
Elotuzumab
Margetuximab-cmkb
Reslizumab
Nivolumab
Isatuximab-irfc
Siltuximab
Teprotumumab-trbw
Ramucirumab
Ipilimumab
Alemtuzumab
Panitumumab
Cetuximab
Palivizumab ...

and many more.

... same old delivery bottlenecks



Basically, even in the year 2024, mAbs can be administered any way you wish,

as long as it is IV*

- with some important exceptions

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Physics and Chemistry ... ... have constrained biologics' delivery

The Constraint ?

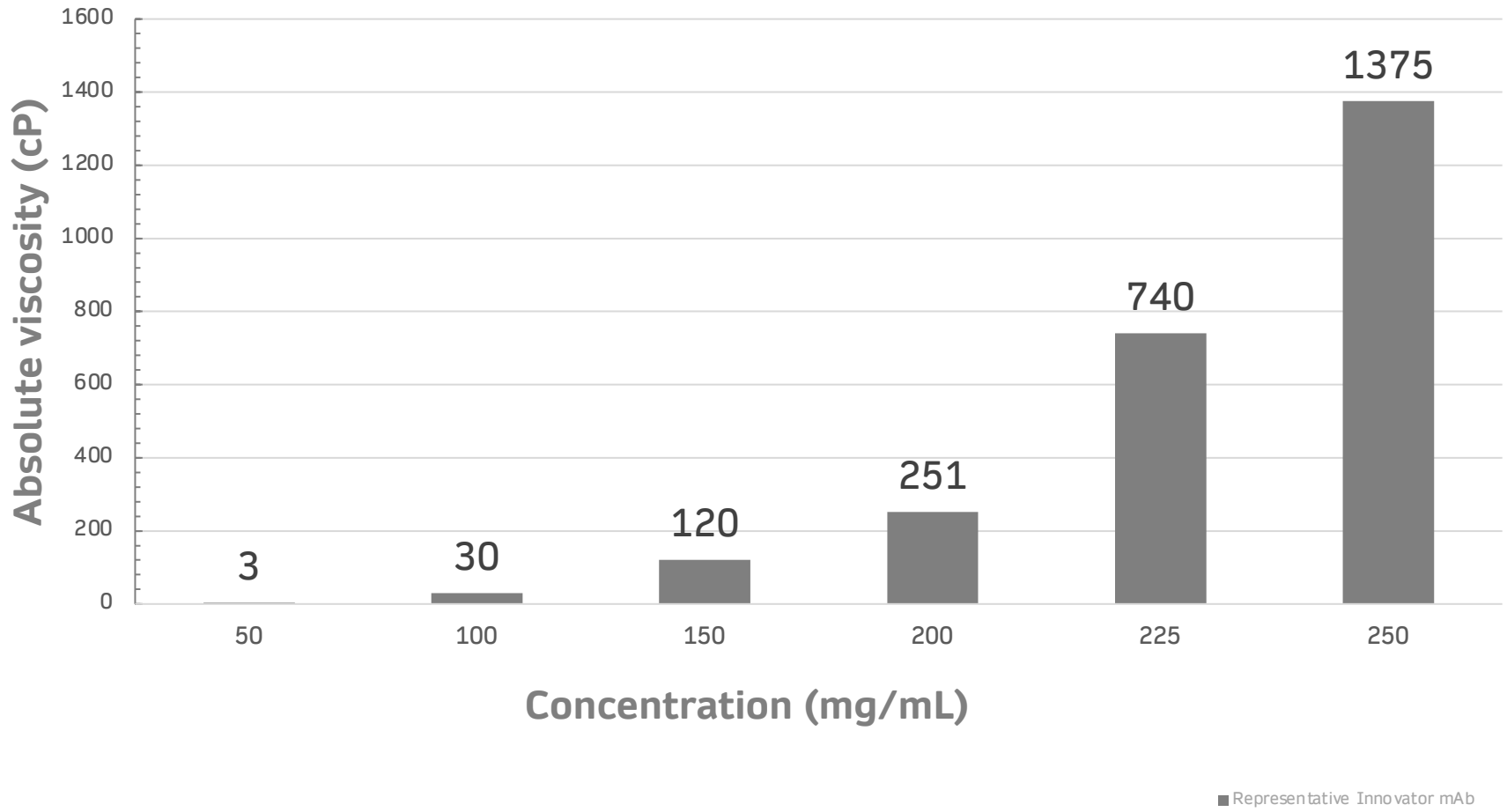
High Dose

+

High Concentration

=

High Viscosity



Viscosity increases strikingly with higher concentration.

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With Qprotyn...

... Innovation opens new possibilities

Qprotyn represents BRL and is the distributor of BRL's viscosity-reduction technology.

In May 2020, Bhami's Research Laboratory (BRL) was granted a US patent for an elegant new technology that has rewritten this equation:

High Dose

+

High Concentration

+

HILOPRO® Technology

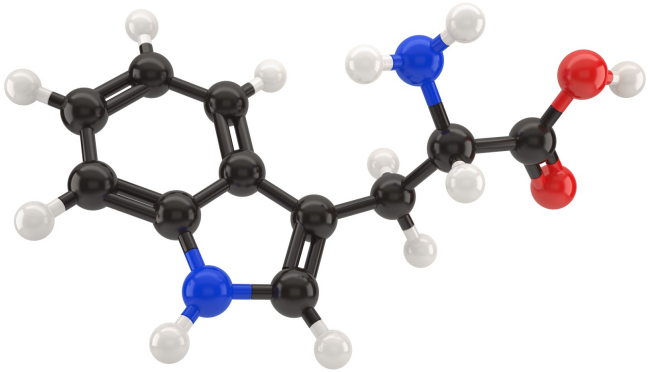
=

Low Viscosity

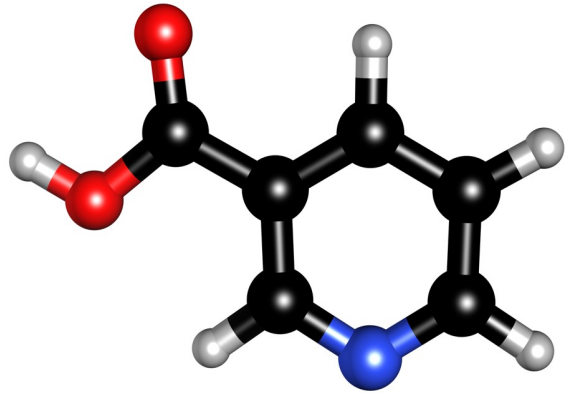
Safety Data

Safety of Excipients

Niacin and Tryptophan used **in combination** in the HILOPRO® Technology, have a No-observed-adverse-effect level (NOAEL) of **26mg/kg** of body weight for Niacin and **15.5mg/kg** of body weight for Tryptophan.



Tryptophan



Niacin

These are **GRAS excipients** that have been used **independently** in commercial parenteral nutritional supplements at high doses.

- Based on a 28-day, repeated dose toxicity study of the excipients conducted at an independent CRO*
- Additional data and the copy of the complete study can be provided under a CDA

We're not just saying that...

... We can prove it

Niacin and Tryptophan have never been used in the in combination for viscosity-reduction purposes.

Together, they show a dramatic reduction in viscosity across all tested mAbs at roughly half of NOAEL values.

Buffer	Formulation Composition	Protein concentration (mg/ml)	Viscosity (cP at 25° C)
25 mM PHOSPHATE BUFFER, pH = 6.0	**HILOPRO® EXCIPIENTS** Niacin + Tryptophan	**250**	**18**
		264	**20**
25 mM HISTIDINE BUFFER, pH =6.0	200 mM NaCl and 250 mM Arginine	250	48
	200 mM NaCl	257	59
	250 mM Arginine	264	61
	1737 mM Proline	240	46
	250 mM Thiamine	250	48
	150 mM Nicotinamide	250	51
	690 mM Nicotinic Acid Sodium Salt	226	41
	250 mM Camphor Sulphonic Acid	229	32
	51 mM Caffeine	250	42
25 mM PHOSPHATE BUFFER, pH=6.0	**Control:** 25 mM Phosphate Buffer Only	250	170
		264	253

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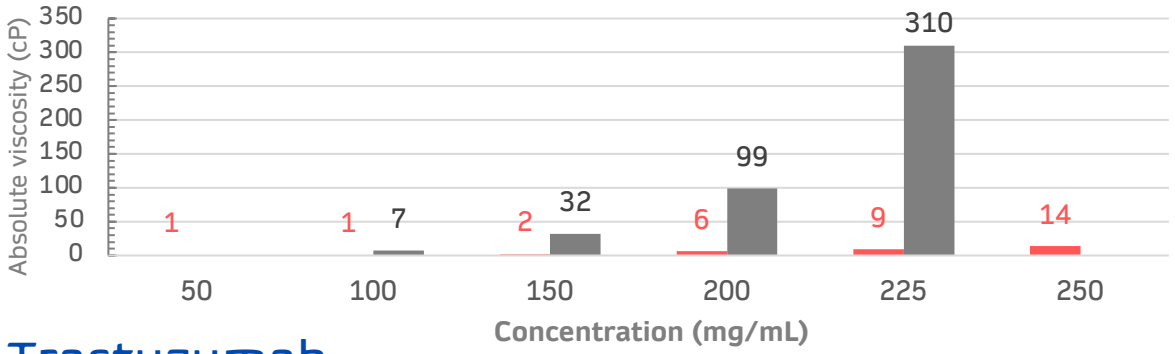
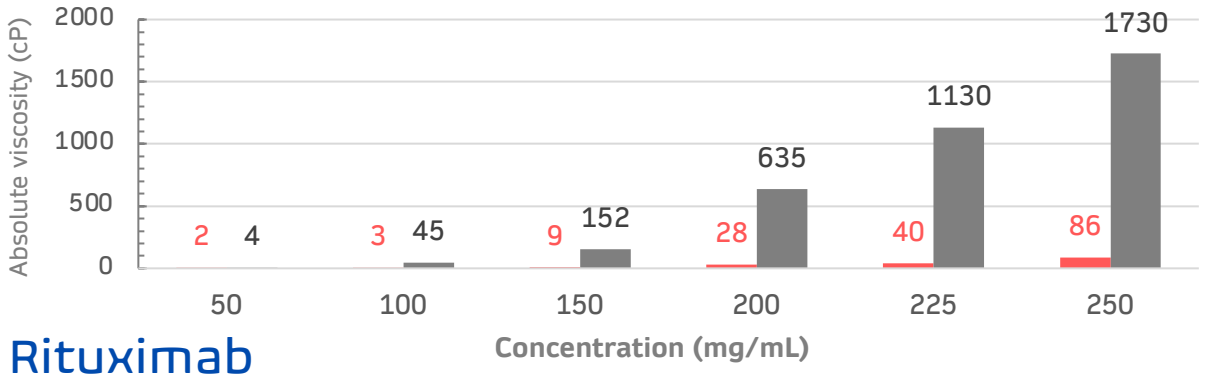
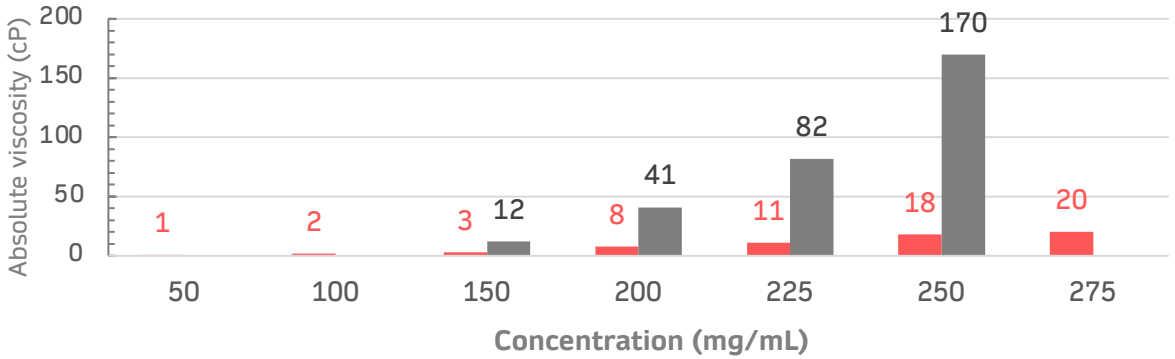
Bevacizumab



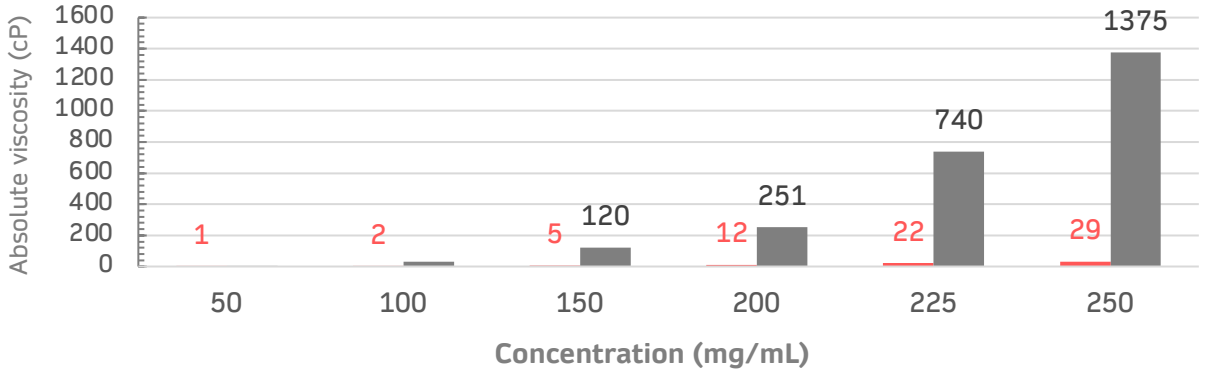
Cetuximab



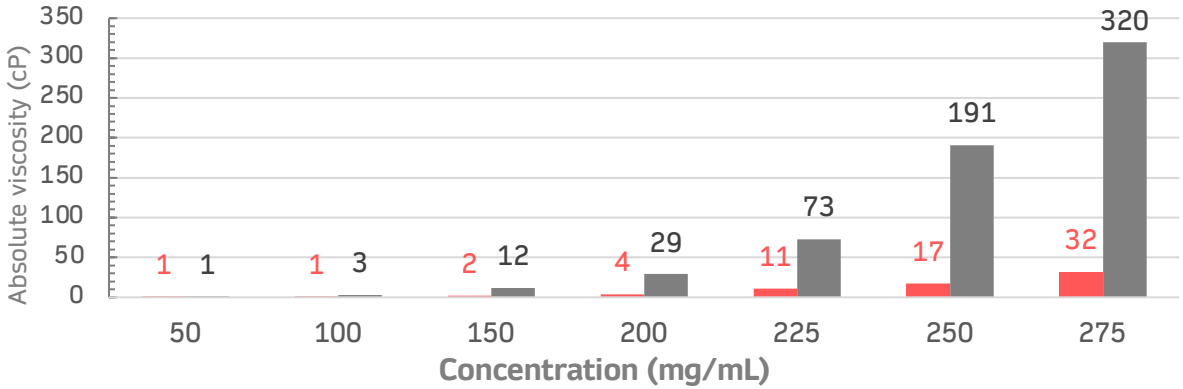
Trastuzumab



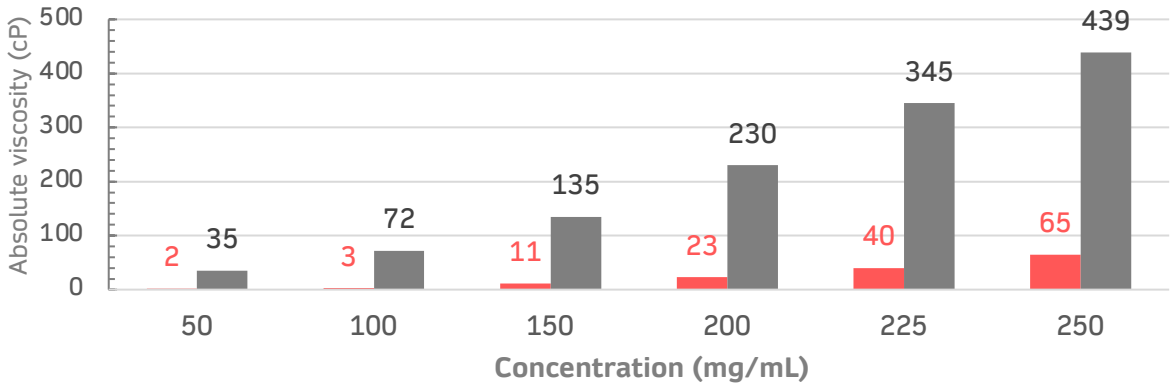
Rituximab



Human Gamma Globulin



Etanercept



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With HILOPRO®

Without viscosity-reduction excipients

It is among the best...

... stable, viscosity-reduction platform out there today

In terms of potential, HILOPRO® surpasses **all contemporary technologies** with respect to:

- Universal formulation technology for any mAb
- Platform Application
- Viscosity Reduction
- Cost
- Safety and Stability
- Turnaround time
- Ease of Manufacturing

SubQ Technology	Key Features	Major Disadvantages
High volume delivery using hyaluronidase	Degrades hyaluronan in the subcutaneous space to allow for high volume delivery	• Long administration time • High volume drug delivery • High cost of manufacturing • Risky self-administration for patients
Viscosity reducing excipients and formulation technologies	Use buffering agents and formulation excipients to reduce protein aggregation	• Not suitable as platform technologies • Potential safety and toxicity concerns • Inferior viscosity reduction abilities compared to HILOPRO®
Fluid suspension and crystallization	Use specialized particle engineering, crystallization, atomization or dehydration techniques	• Particles are in suspension formulations, not solutions • Not tested successfully for significant number of mAbs • High cost of manufacturing and scaling-up
High viscosity injection devices	Use high force and resistant containers to deliver high viscosity formulations	• Inherent stability challenges • Not tested successfully for significant number of mAbs • Increased injection site pain

The HILOPRO® Formula…

… High Concentration + Low Viscosity = Low Volume

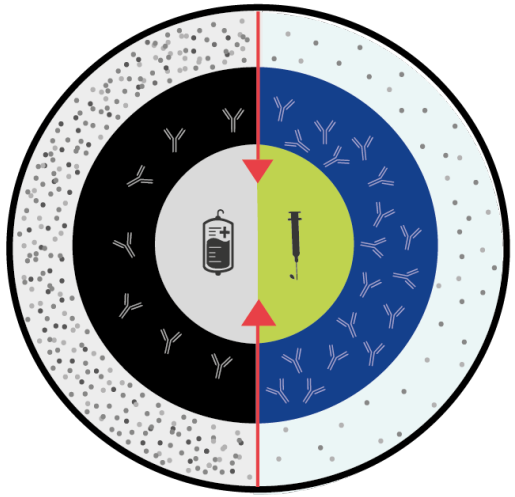
A **single formulation** technology that supports multiple dosing and delivery options

=

Greater Flexibility

+

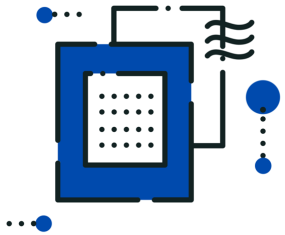
Optimal patient convenience



High-concentration, low-viscosity, low-volume dosing opens new delivery possibilities
(while retaining existing delivery capabilities).

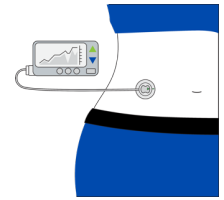
Intravenous

SubQ



Microneedle Patches

Ocular / Intravitreal



Wearable Device

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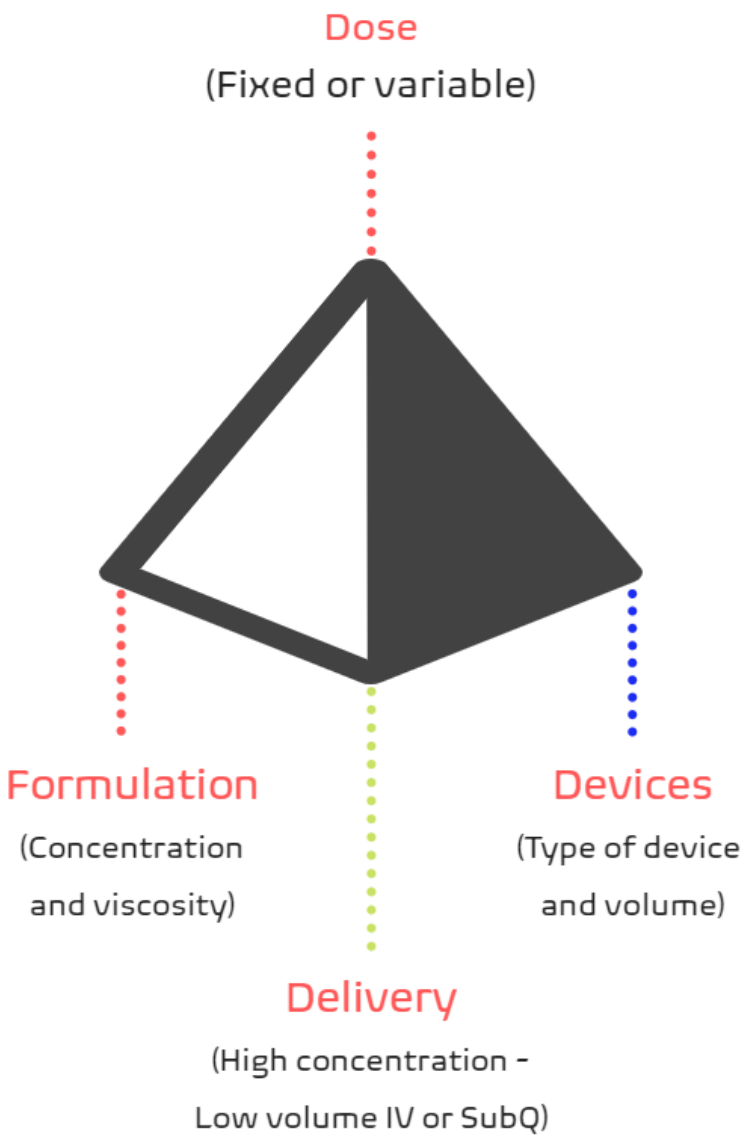

IV to SubQ is a System Approach

Example	Current System	HILOPRO® System
mAb Dose	500mg	500mg
Concentration	10mg/mL	250 mg/mL
Form	Lyophilized powder for reconstitution	Solution
Delivery	IV	SubQ
Device (Vol.)	Infusion Bag (100mL)	2cc — Syringe, Autoinjector, Wearable Device
Viscosity	NA	< 20 cP
Time to administer	30 - 90 min	< 1 min

Advantage ...

- ✓ Safety
- ✓ Temperature stability
- ✓ Shelf life
- ✓ Efficacy
- ✓ Bioavailability
- ✓ Patient Convenience

... HILOPRO®

GRAS — Excipients approved by the US-FDA and used in commercially available parenteral supplements

High concentration, low viscosity
>200mg/mL at 18cP

Confirmed stability at $4^{0}C$ and $25^{0}C$ under test conditions

Potential for Longer Lasting efficacy as compared to IV delivery

Administration time reduced from hours to minutes

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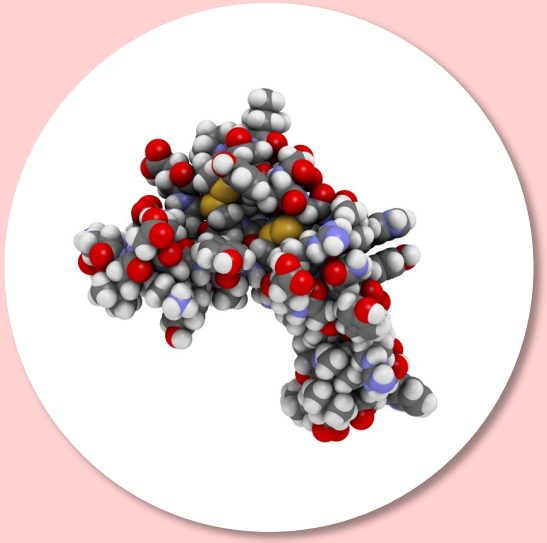
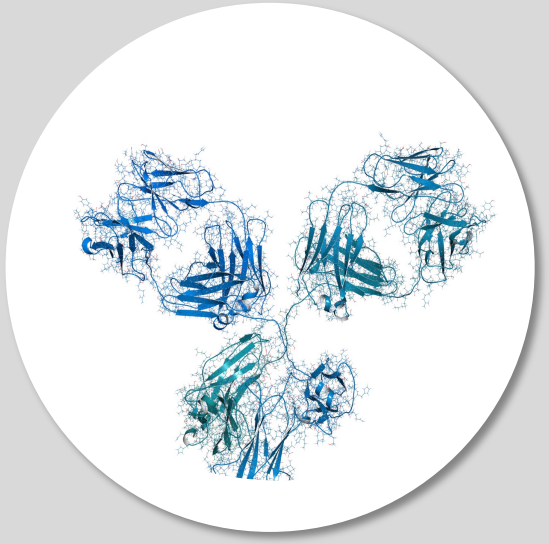
Qprotyn Value Proposition



Innovator mAbs

Dosage of >500mg can be now delivered direct to SubQ instead of IV.



mAbs in Trials

mAbs in trial can be upgraded from IV to SubQ administration.

Bio - betters

First-mover advantage and differentiation value for SubQ biosimilars over dominant innovators.

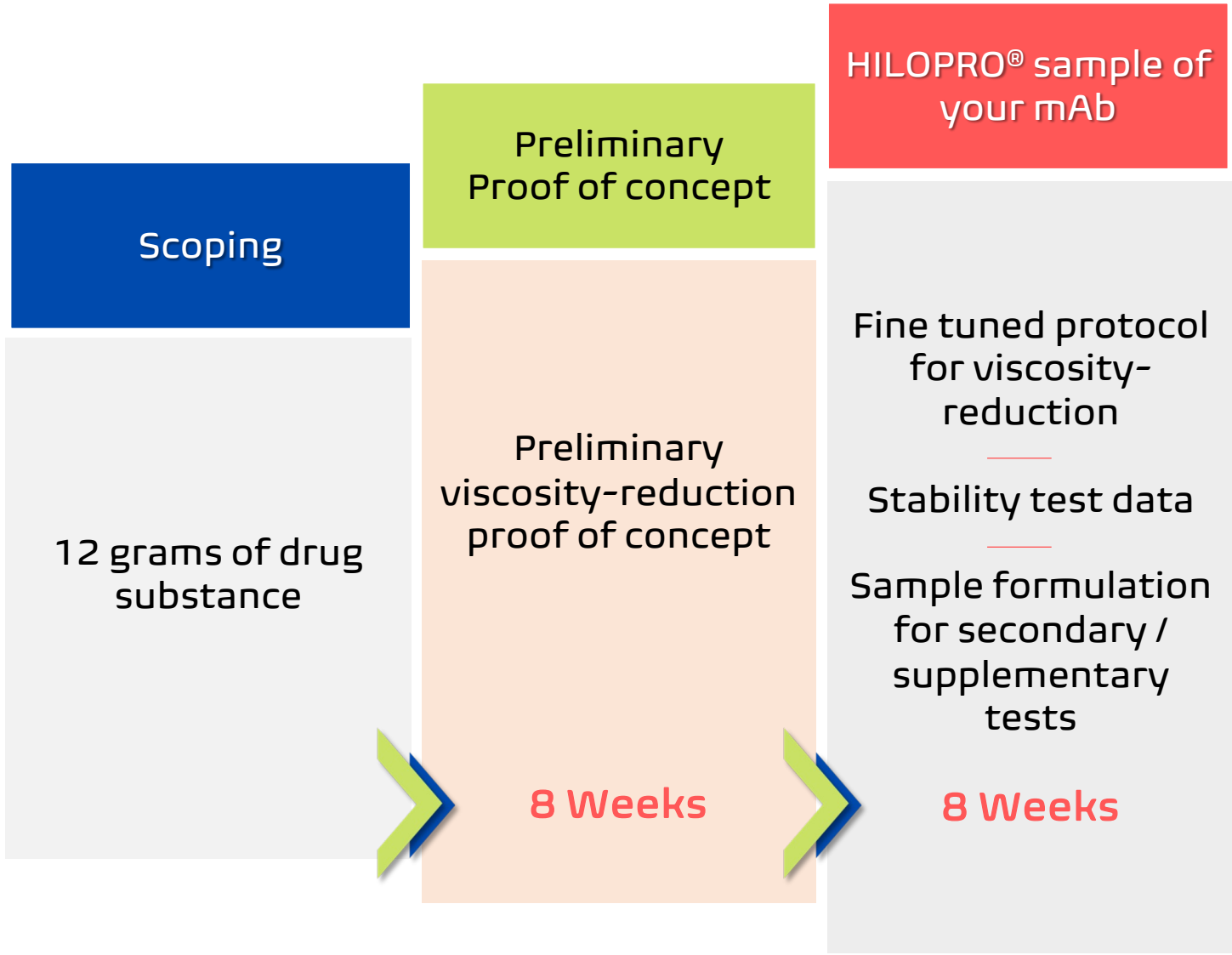
Prove it !

High dose mAbs and Biosimilars' pipeline

We would love to !!

Proof of Concept in
8 weeks.

HILOPRO® formulated for further testing, in
16 weeks



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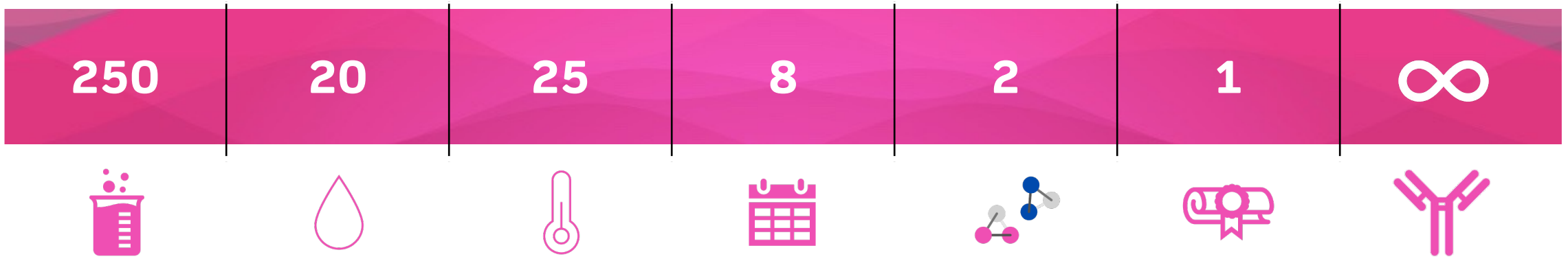

Changing the world one mAb at a time.

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