From CHO Cell Line to the Clinic:

Decisions That Will Make or Break Your Biologics Program

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Demeetra

NorthX Biologics

Where CHO comes from and Why CleanCut™ GS CHO

CHO Origin
Puck & Kao · 1957

- ✓ ~87% of mAbs, bsAbs & Fc-fusions
- ✓ Human compatible glycosylation
- ✓ 40+ years regulatory precedent
- ✓ Scalability

CHO-DG44
DHFR⁻/⁻ · MTX selection

- x Selection creates instability
- x Lower cell density

CHO-K1 Suspension
Industry standard host

- ✓ Top foundational CHO cell
- x Lacks robust selection
- x MSX damages cells

Single GS KO
Chr.5 KO · leakage risk

- x Selection leakage & timeline
- x Licensing drag

CleanCut™ GS CHO
Chr.5 + Chr.1 · Cas-CLOVER

- ✓ Faster more robust selection
- ✓ License free

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Three integration approaches

Why the method determines your timeline and titer

Lead Candidate
Gene in hand

Random integration

Heavy screening

Instability

Low efficiency, heterogeneous pool

100s clones screened

Longer timelines
Re-screen risk

Targeted integration

Low efficiency

Low copy #

Precise but low copy # and efficiency

Single-cell clone required

Limited titer

Transposase integration

Semi-targeted, high multi-copy

Minimal screening, stable

High titer

IND-ready cell line

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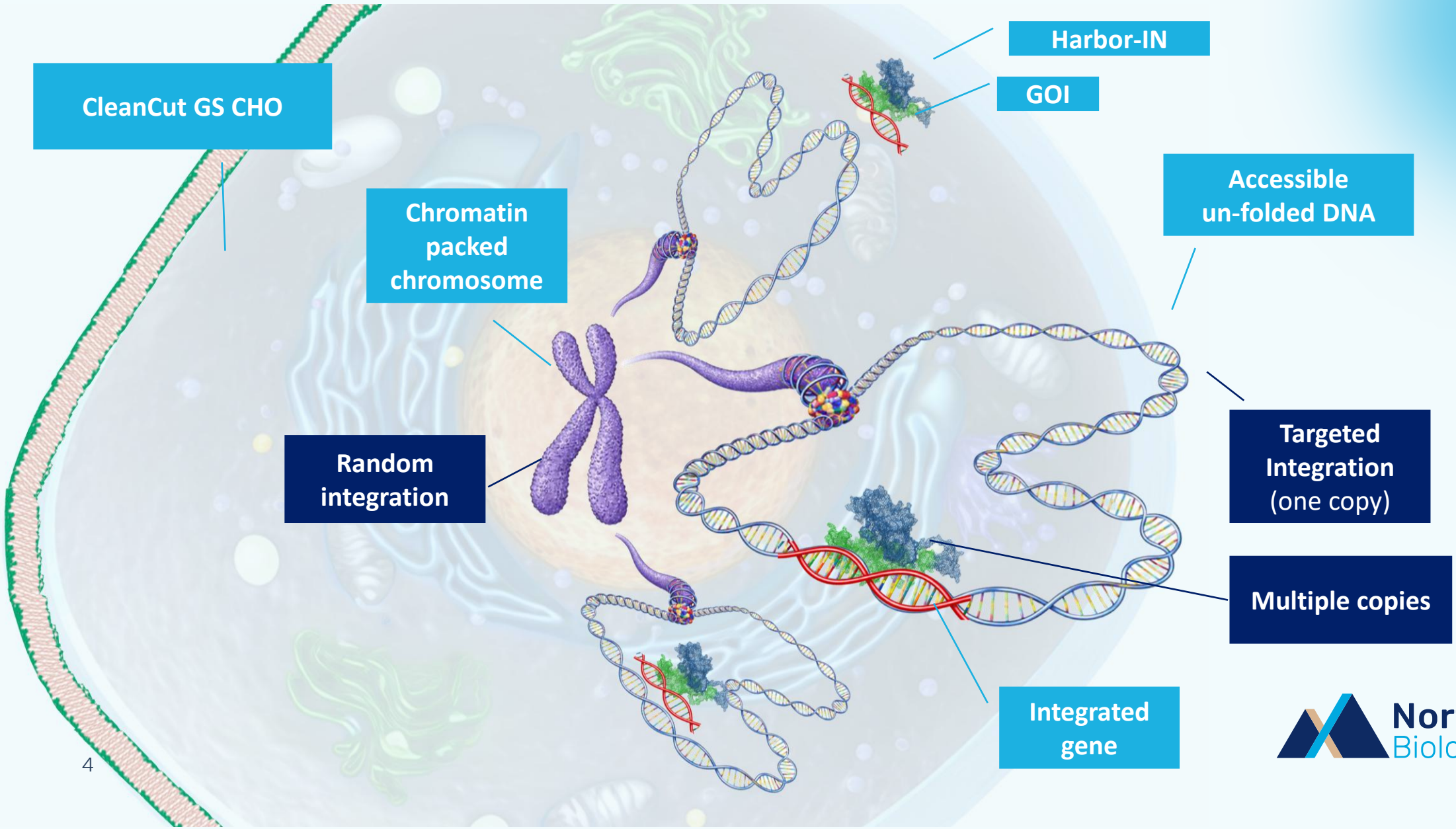
The Harbor-IN Integration Mechanism

Compared to other integration approaches



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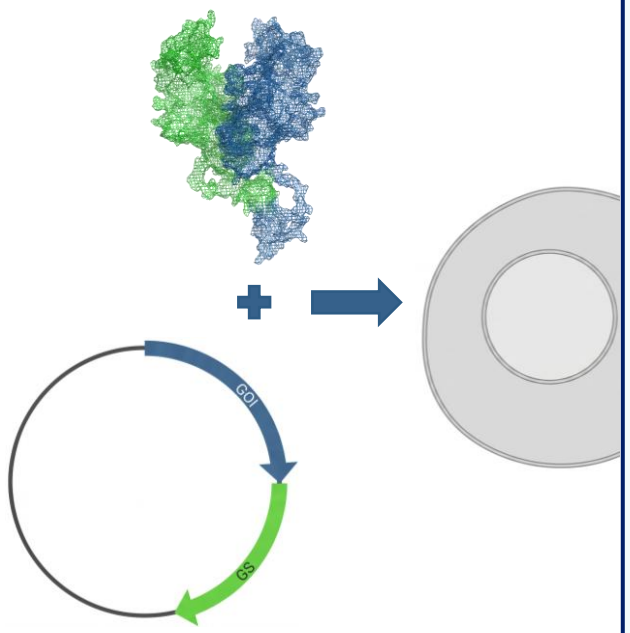
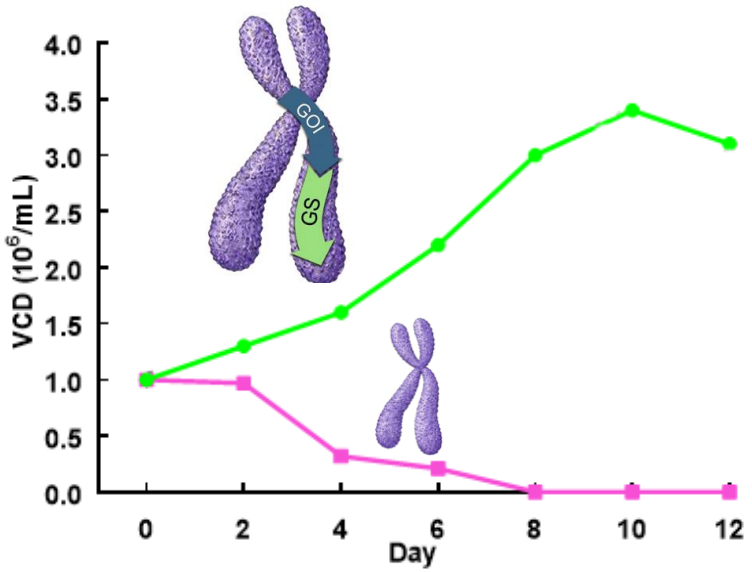
Step 1: **Rapid, Robust Pool Generation**

Transfection

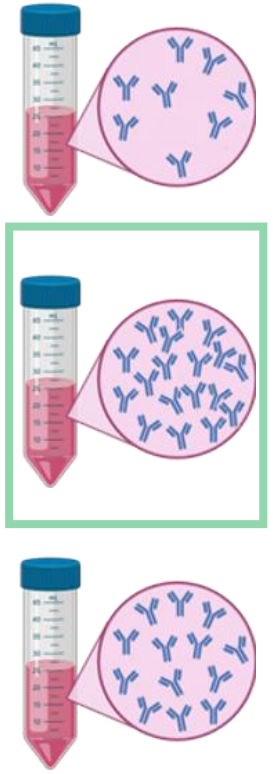


8-12 unique vectors

Selection



Stable pools



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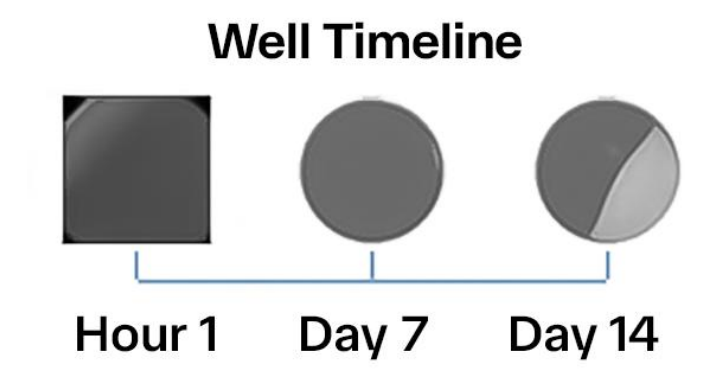
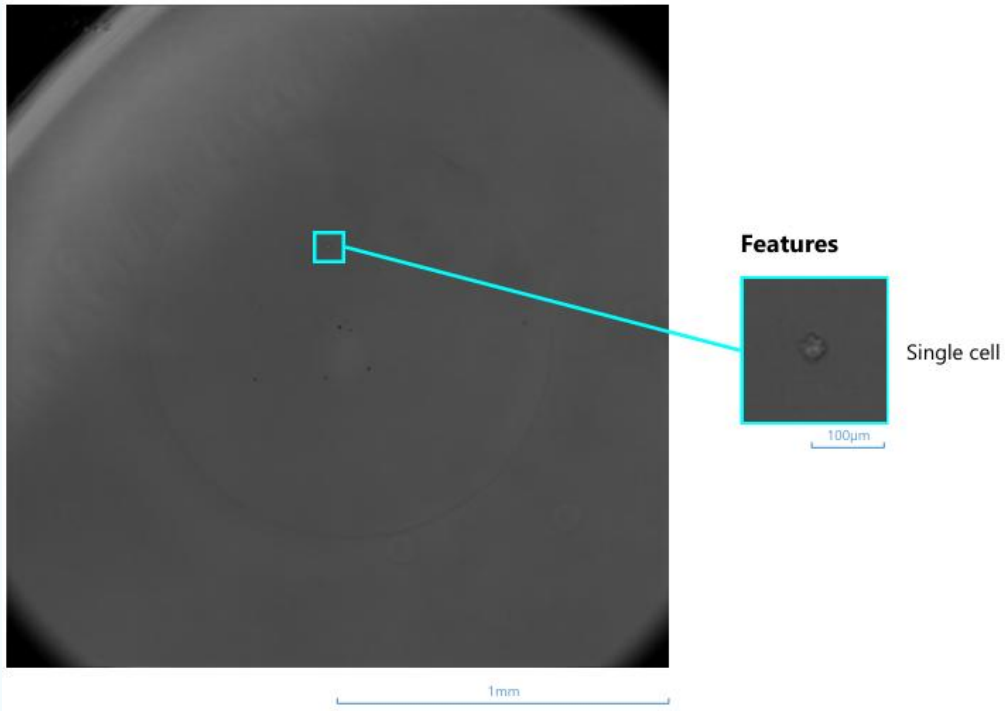
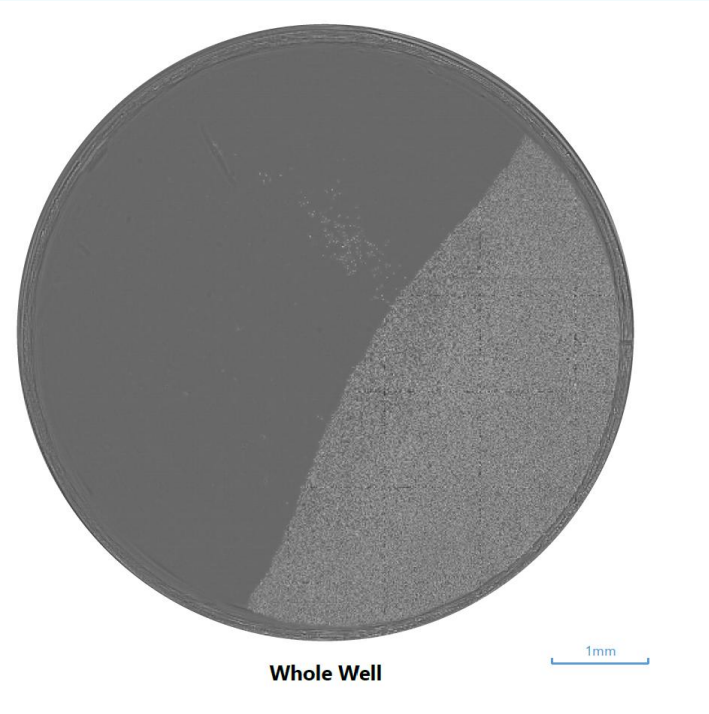
Step 2: Isolating and Selecting Top-Performing Clones







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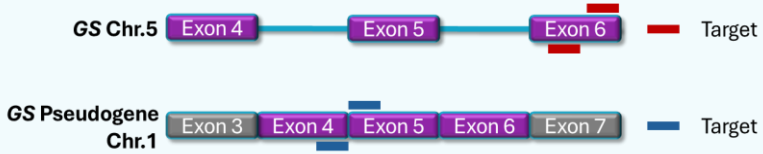
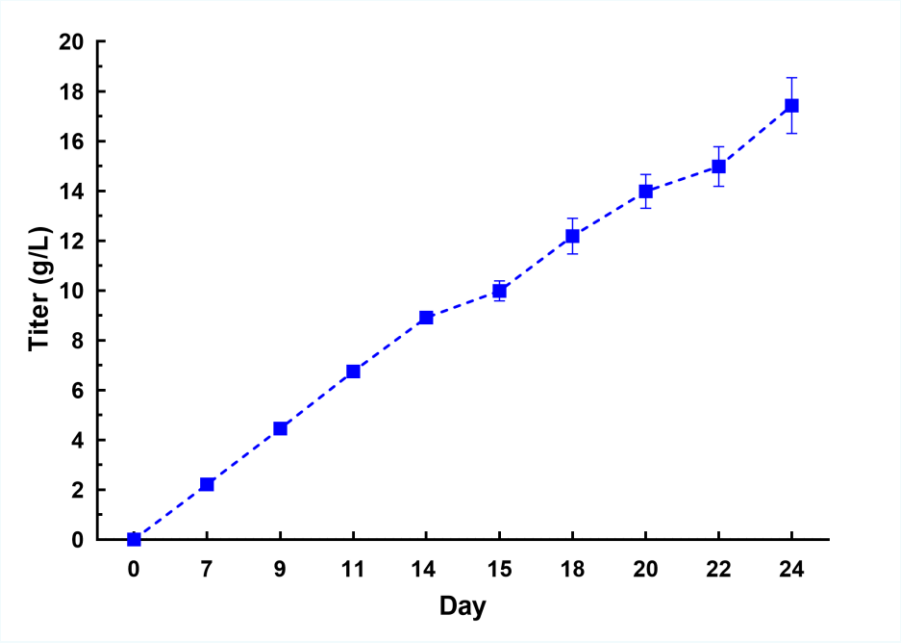
Demeetra Cell Line Development Platform



Antibody Pool Titer
18 g/L



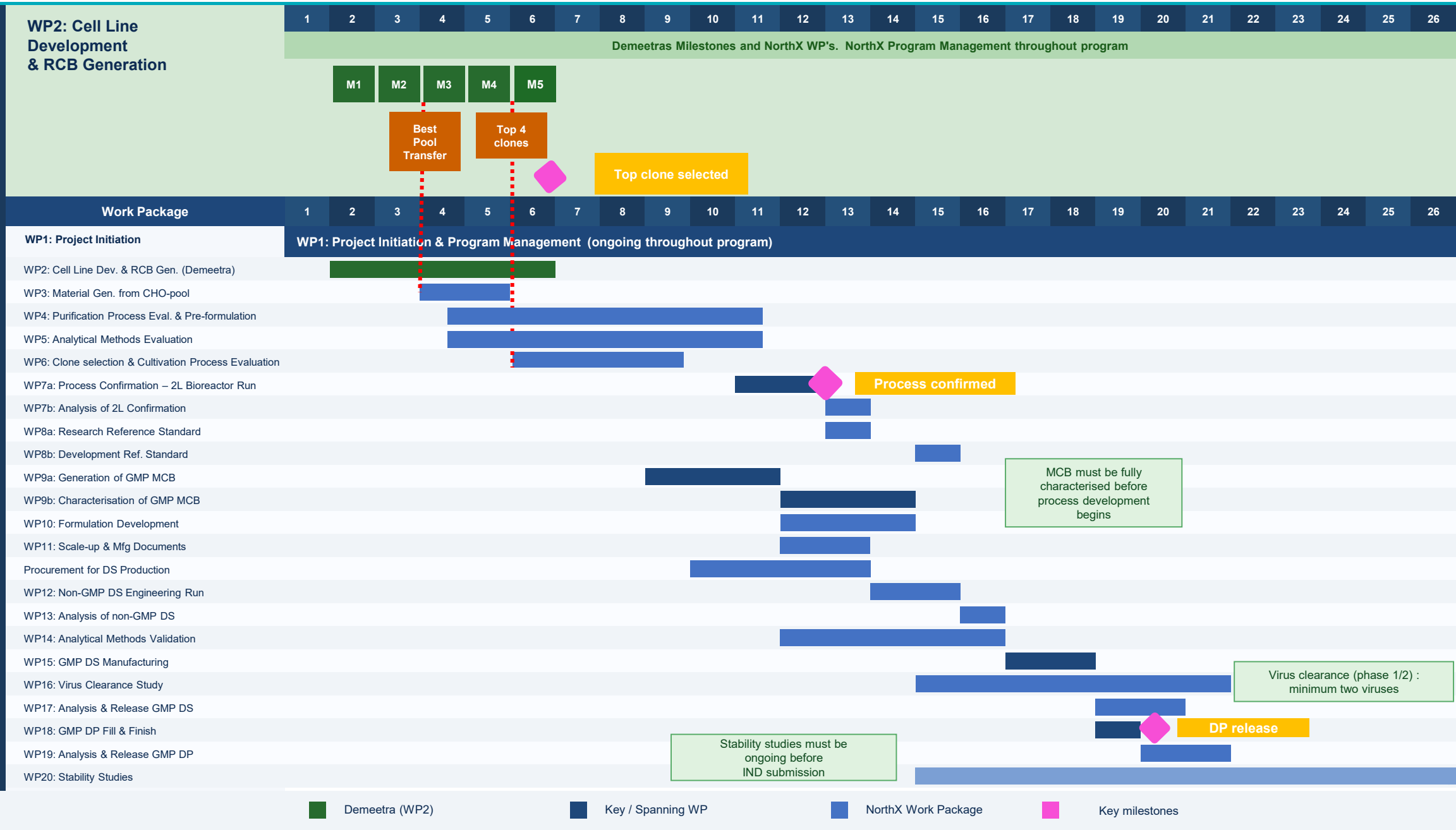
1. Used by 20+ Companies
2. Media is of Animal-free Origin
   Grows in single cells in suspension
3. Full History Report & Traceability
4. Viral-Panel Tested
5. Royalty-Free

Generic mAb CHO Program – Full mAb

Project Timeline & Workflow Overview

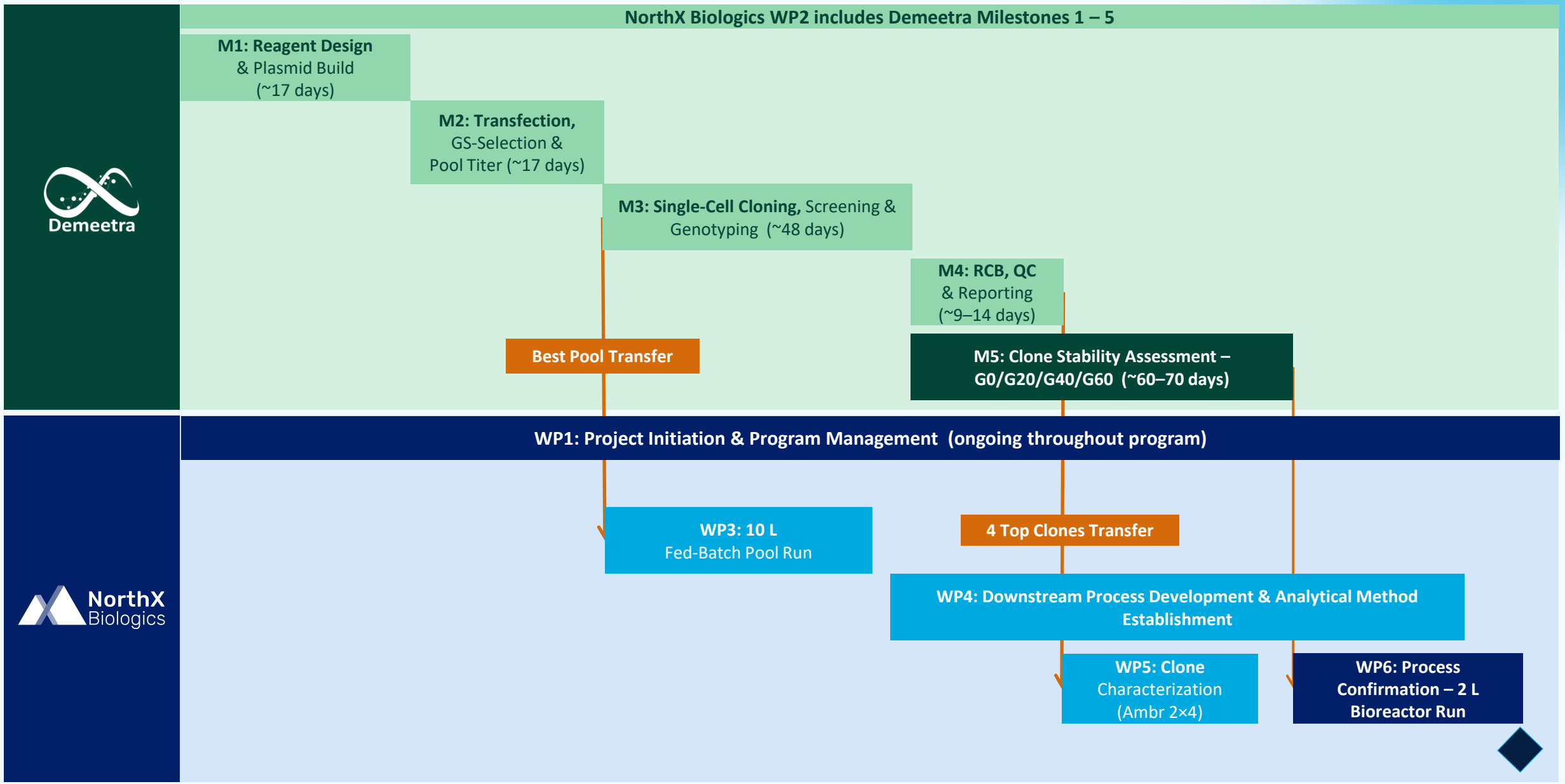
Demeetra AgBio, Inc.

NorthX Biologics AB



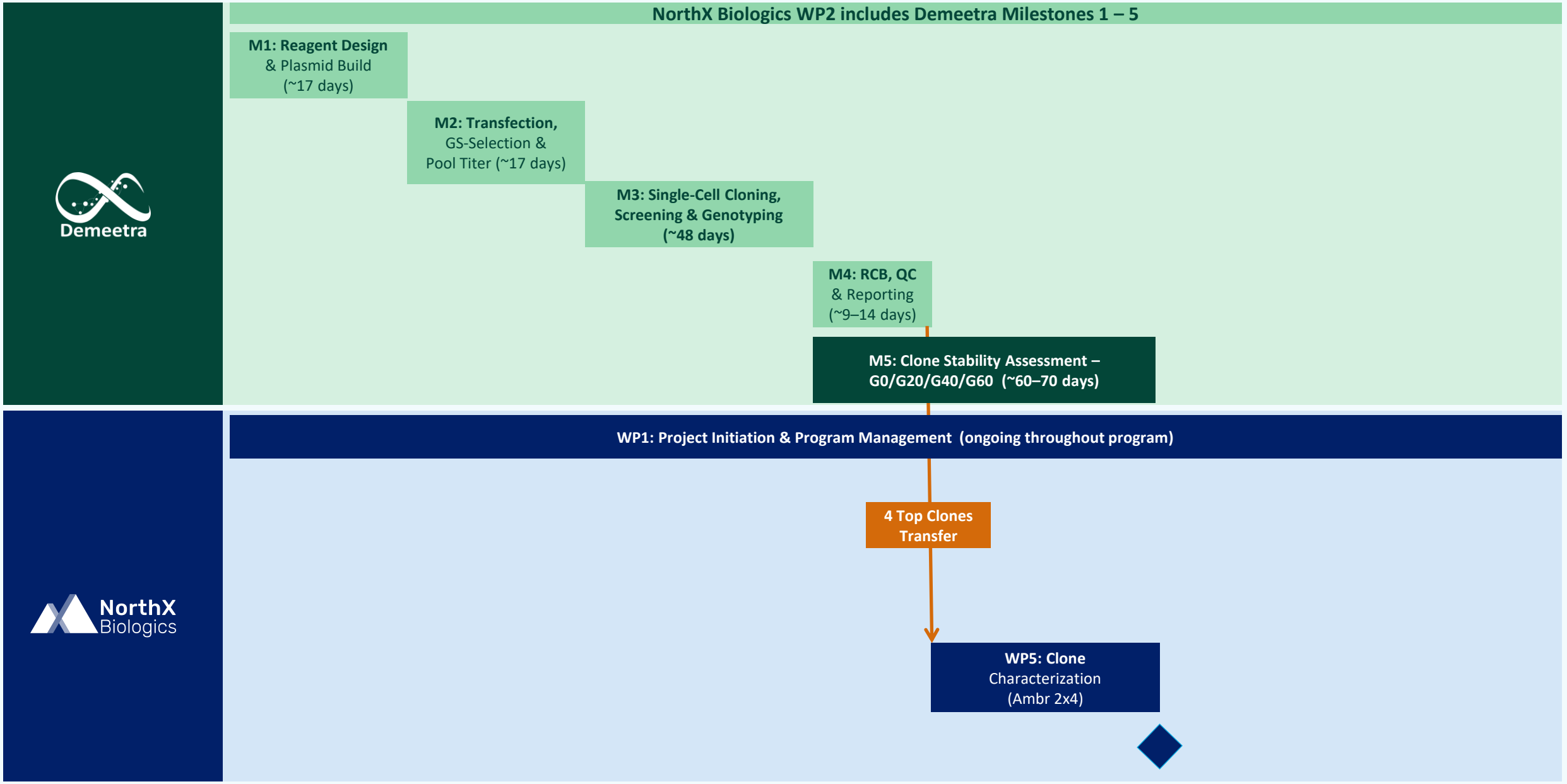
Generic mAb Program – CLD & process establishment

Project Timeline & Workflow Overview



Generic mAb Program – CLD

Project Timeline & Workflow Overview



Analytical Overview – standard mAb offering

Category	Attribute	Method	Release	IPCs	Stab.
Identity	Capillary Isoelectric Focusing	cIEF	DS/DP		
	Binding Activity	ELISA	DS/DP		
Purity	Monomer Purity	SE-HPLC	DS/DP		DS/DP
	Fragmentation/aggregation	CE-SDS-LIF (red/non-red.)	DS/DP		DS/DP
	Charge Heterogeneity	cIEF	DS/DP		DS/DP
	Residual Host Cell DNA	qPCR	DS		
	Residual Host Cell Proteins	ELISA	DS		
	Residual Ligand Protein A	ELISA	DS		
Potency	Binding Activity	ELISA	DS/DP		DS/DP
Quantity	Protein Concentration	A280	DS/DP		DS/DP
Safety	Endotoxin	Ph. Eur. 2.6.14 (D)	DS/DP	X	DS/DP
	Bioburden	TAMC/TYMC	DS	X	DS
	Sterility	Ph. Eur. 2.6.1	DP		DP
	CCIT	Pressure Decay	DP		
	Sub-visible particles	USP <787>	DP		DP
	Mycoplasma	Various		X	
Physiochem.	pH	Ph. Eur. 2.2.3	DS/DP	X	DS/DP
	Osmolality	Ph. Eur. 2.2.35/USP	DS/DP		DS/DP
Other	Color and Clarity	Ph. Eur. 2.2.1/2.2.2	DS/DP		DS/DP
	Appearance, Visual	Ph. Eur. 2.9.20	DS/DP		DS/DP
	Particles (visible)	Ph. Eur. 2.9.20	DP		DS/DP
	Extractable volume	USP <697>	DP		

USP IPCs: VCD, viability, metabolites and gases, mycoplasma, mycoplasma stasis, pH, titer, bioburden, MMV, TEM and 28-day in vitro. DSP IPCs: pH, titer, bioburden, A280, endotoxin, conductivity, and pO2.

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Questions?

Protect Your Asset at Every Stage

WHAT DEMEETRA + NORTHX OFFERS
One continuous workflow — no reset
Royalty-free through commercialization
GMP-aligned from day one

One MSA. One partnership. Gene → Clinical material, with your timeline, margin, and asset value intact.

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