

Engineering Proteins That Power Progress

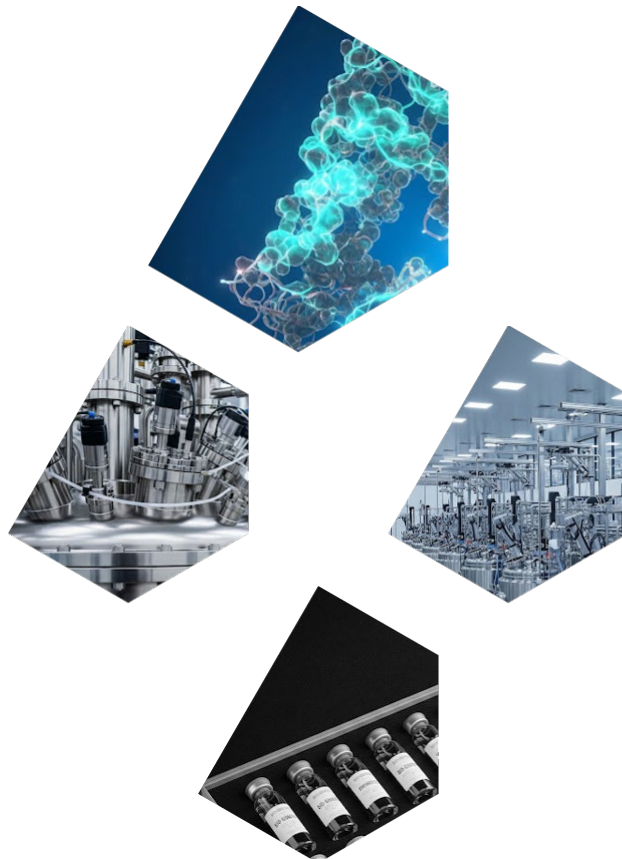
 **LIFE SCIENCES**

 **FOOD & NUTRITION**

 **BIOINDUSTRIAL**

Scalable protein solutions across Life Sciences,
Food & Nutrition, and BioIndustrial markets.

BIO International Convention 2026



Recombinant Solutions for Today's Market

Global demand for animal-free proteins is accelerating while existing systems face critical constraints.

Current Market Challenges

-  **High biologics manufacturing costs**
 - Expensive mammalian cell production
 - High COGS & complex processing
-  **Supply chain vulnerability**
 - Geographic concentration & limited base
 - Production bottlenecks
-  **Limited manufacturing capacity**
 - Long timelines & scale-up challenges
 - Facility constraints
-  **Sustainability pressure**
 - Resource-intensive production
 - High carbon footprint

The Dyadic Advantage

-  **Faster development cycles**
Stable strains in weeks; rapid scale-up
-  **Lower production costs**
High-yield, cost-efficient fermentation
-  **Animal-free production**
Sustainable; no animal-derived inputs
-  **Commercial-scale manufacturing**
Proven scalability & consistent quality
-  **Flexible microbial systems**
C1 and Dapibus™ Platforms

Demand Drivers
Accelerating Adoption



Advanced Biologics



Sustainability Initiatives



Precision Fermentation



Global Demand

Commercial Ready Platforms

Recombinant solutions supporting scalable recombinant protein production.



ADVANCED BIOLOGICS

C1 Platform

Best Fit

Therapeutics • Vaccines • Complex Biologics
Cell culture applications

Advantages

High productivity & humanized glycosylation
Rapid strain development & scalability



BIOINDUSTRIAL & NUTRITION

Dapibus™ Platform

Best Fit

Food & Nutrition • Functional proteins
BioIndustrial applications

Advantages

Yield optimization & low-cost fermentation
Sustainability & industrial flexibility



Faster Development



Lower COGS



Flexible Scale



Proven Manufacturing



Animal-Free

Technology platforms + proven production= scalable commercial execution.

Why Dyadic is Different

Microbial production systems combining speed, scalability and cost efficiency for modern recombinant protein manufacturing.



Rapid strain development

Stable strains in ~7 weeks



High productivity

Fast growth and high-yield expression



Secreted protein expression

Simplified downstream purification



Commercial scalability

1L to >100,000L+ fermentation



Low-cost fermentation

Animal-free, low-cost defined media



Flexible glycosylation

Humanized & mammalian-like glycans



Technical Proof Points

- No viral clearance required
- Low viscosity fermentation
- Broad protein expression
- cGMP & GRAS compatible | Flexible operating conditions

Platform Advantages at Commercial Scale

Dyadic's microbial expression platforms combine scalability and economics with mammalian-like capabilities.

PLATFORM BIOLOGY



Filamentous Fungal Host

- Eukaryotic protein processing
- Complex folding pathways
- Disulfide bond formation
- Efficient secretion mechanisms



Non-Sporulating Production Strains

- Improved containment
- Reduced facility contamination risk
- Simplified GMP operations



Humanized Glycosylation Capability

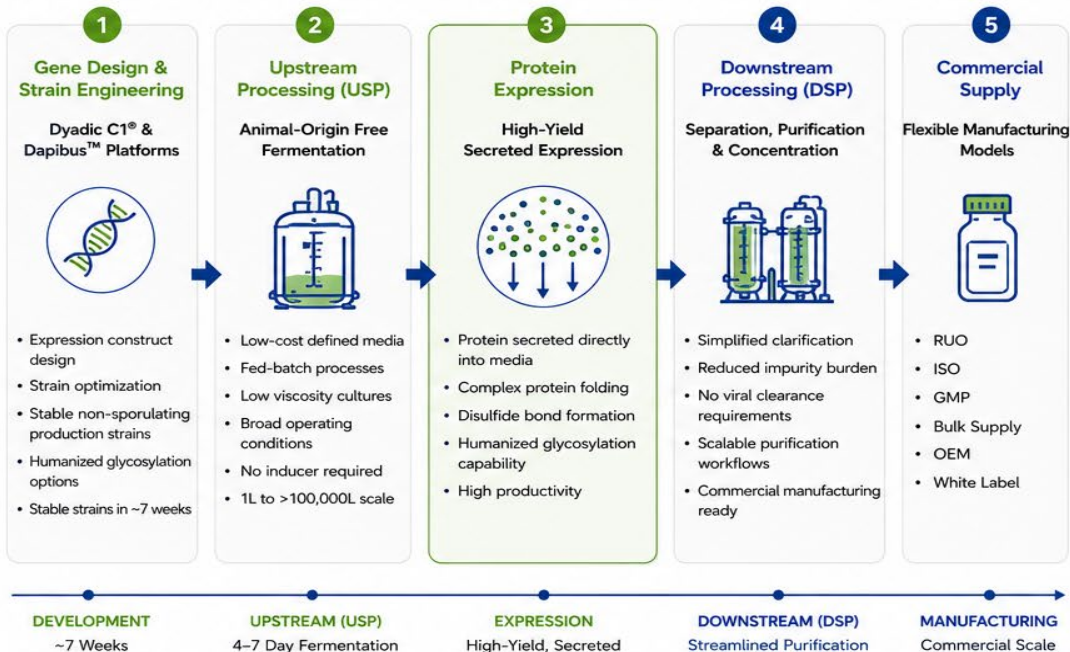
- Mammalian-like glycan structures
- Reduced hypermannosylation
- Glycoengineering flexibility



Secreted Protein Expression

- Protein secreted into media
- Simplified purification
- Lower downstream costs

END-TO-END PROTEIN PRODUCTION WORKFLOW



MANUFACTURING ADVANTAGES



High Productivity
High expression levels for a wide range of proteins



Commercial Scalability
1L to >100,000L fermentation in single-use or stainless steel systems



Animal-Origin Free
No animal-derived raw materials



Low-Cost Defined Media
Economical fermentation with low carbon footprint



Flexible Glycosylation
Humanized and mammalian-like glycan structures



No Viral Clearance
Leverages advantages of microbial manufacturing



Commercial Manufacturing
cGMP & GRAS compatible, commercial scale ready



Rapid Strain Development
Stable production strains in ~7 weeks

FASTER DEVELOPMENT

HIGH PRODUCTIVITY

LOWER COGS

COMMERCIAL SCALE

FLEXIBLE MANUFACTURING

Technology platforms engineered for scalable commercial execution.

Biopharmaceutical Applications of the C1 Platform

High-yield production of complex biologics



VACCINE ANTIGENS

- Trimers
- Nanoparticles
- Virus-Like Particles (VLPs)
- Fusion Proteins



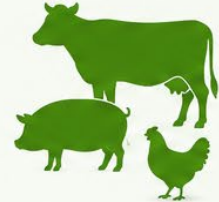
MONOCLONAL ANTIBODIES

- Human mAbs
- Humanized Glycoproteins
- Fc-Containing Molecules
- Biosimilar & Novel Antibody Formats



ANIMAL HEALTH BIOLOGICS

- Vaccine Antigens
- Therapeutic Proteins
- Diagnostic Proteins
- Livestock Vaccines



Powered by the C1® Expression Platform



Humanized
Glycosylation



Secreted
Expression



Commercial Scale
Production



High-Yield
Fermentation



Stable
Cell Lines



Animal-Origin
Free



RAPID DEVELOPMENT

Stable strains in ~7 weeks



REGULATORY READY

GMP-compatible processes



COMMERCIAL SCALE

1L to >100,000L scale

Advanced expression and glycoengineering capabilities supporting next-generation biologics.

Regulatory & Clinical Readiness

Designed for Biopharmaceutical Development



PLATFORM SAFETY

- ✓ Non-pathogenic fungal host
- ✓ Extensive industrial fermentation history
- ✓ FDA GRAS organism
- ✓ No mammalian viral contamination risk
- ✓ No endotoxin concerns



MANUFACTURING QUALITY

- ✓ Controlled impurity profile



HCP



Residual DNA



β -glucans

- ✓ Standard downstream purification approaches
- ✓ GMP manufacturing demonstrated
- ✓ GLP-to-GMP comparability established



CLINICAL EXPERIENCE

- ✓ DYAI-100 Phase I vaccine completed
- ✓ Human exposure demonstrated
- ✓ Primary safety endpoint achieved
- ✓ Humoral and cellular immune responses observed



PHASE I CLINICAL TRIAL

- Well tolerated with no serious adverse events related to vaccine
- Established safety up to 30 μ g dose



IMMUNE RESPONSES OBSERVED

- Strong binding and neutralizing antibody responses
- Robust cellular immune responses (CD4+ and CD8+)

Demonstrated Performance for Vaccines & Antibodies

Faster development. Commercially relevant productivity



VACCINE ANTIGENS

Proven Across Human & Animal Health Programs

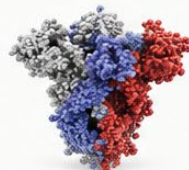
- ✓ RSV Prefusion Trimers
- ✓ SARS-CoV-2 Spike Antigens
- ✓ Multivalent Respiratory Vaccines
- ✓ Human & Animal Vaccine Programs

KEY PERFORMANCE METRICS

- High-yield expression measured in g/L, not mg/L
- Record productivity exceeding **20 g/L**
- CHO-like structural confirmation
- Comparable neutralizing antibody responses
- Supported **DYAI-100 Phase I** clinical program

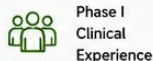


RSV Prefusion Trimer



SARS-CoV-2 Spike

SUPPORTING DATA



Ref: Pages 12, 17-18



MONOCLONAL ANTIBODIES

Therapeutic Antibody Production Capability

- ✓ Nivolumab Proof-of-Concept
- ✓ Humanized Glycosylation
- ✓ Protein A Compatible Purification
- ✓ Commercial Strain Development

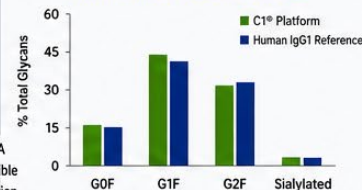
KEY PERFORMANCE METRICS

- Productivity exceeding **20 g/L**
- Human-like glycan structures
- Comparable binding activity
- Comparable biological functionality
- Scalable commercial manufacturing potential



Human IgG1 Antibody

HUMAN-LIKE GLYCAN PROFILE



SUPPORTING DATA



Ref: Pages 27-29

C1® PLATFORM PERFORMANCE



High-Yield
Expression



Humanized
Glycosylation



Secreted
Expression



Commercial Scale
Manufacturing



Clinical
Experience



GMP
Compatible

Vaccine Antigens



Phase I



Monoclonal Antibodies



Development
Programs



High Yield

Humanized Glycosylation

Commercial Scale

GMP Compatible

From Research Reagents to Therapeutic Biologics

One scalable production platform. Multiple product categories. Expanding value creation opportunities

Reagents → Advanced Biologics

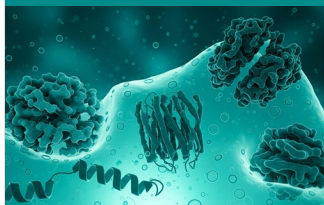
LEVEL 1



- Research Proteins
- Laboratory Reagents
- Commercial Products

✓ Available Today

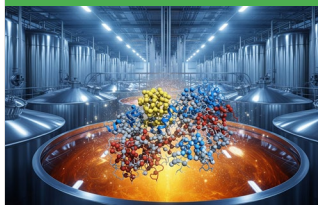
LEVEL 2



- Specialty Proteins
- Cell Components
- Difficult Proteins

✓ Expanded Apps

LEVEL 3



- Antigens
- Fc Fusion Proteins
- Complex Proteins

🚀 Adv. Manufacturing

LEVEL 4



- Vaccines
- Monoclonal Abs
- Therapeutic Proteins

★ High-Value Biologics



Clinical Experience

Human clinical program and vaccine dev activities.



Regulatory Readiness

Regulatory-aligned, quality-focused approach.



Manufacturing Control

Controlled systems with consistent scale-up.

SHARED MANUFACTURING FOUNDATION

⚡ Scalable Production

📊 High Yield

🏭 Commercial Mfg

🌱 Animal-Free Production

💰 Cost Efficiency

Integrated Gene-to-Product Platform Workflow



Dyadic

UPSTREAM INNOVATION

- Strain engineering
- Expression optimization
- Protein development
- Process development

Fermbox

MANUFACTURING EXECUTION

- Research & development
- Scale up execution
- Commercial production
- Flexible scales
- Recognized quality systems

Joint Offering

INTEGRATED SERVICES

- Strain development
- USP/DSP optimization
- OEM manufacturing
- White Label
- Custom development
- Strategic partnerships

Commercial Product Portfolio

Animal-free recombinant proteins and enzymes available today



CELL CULTURE & BIOPROCESS COMPONENTS

Essential proteins for cell culture, cell therapy & bioprocessing

- Human Transferrin (Holo/Apo)
- Bovine Transferrin (Holo/Apo)
- Human Albumin
- Human FGF-2
- Bovine FGF
- Human IGF
- Bovine IGF
- Human VEGF-A
- Human PDGF-B
- Human Lactoferrin



CELL & GENE THERAPY REAGENTS

Enzymes for cell isolation, tissue processing & regenerative medicine

- Human Collagenase I
- Human Collagenase II
- Human Hyaluronidase
- Trypsin Alternatives (Porcine & Bovine)



MOLECULAR BIOLOGY & DIAGNOSTICS

Animal-free enzymes for research & diagnostics

- DNase I (RNase-Free)



FUNCTIONAL & NUTRITIONAL PROTEINS

Recombinant proteins for food, nutrition & specialty applications

- Human Alpha-Lactalbumin
- Bovine Alpha-Lactalbumin
- Human Lactoferrin

COMMERCIAL PATHWAYS



BUY

Ready-to-Use Products



Direct Product Supply

Reliable supply of standard products in commercial package sizes



Bulk Supply

Kilogram-scale and commercial supply available



BRAND

Bring Your Brand to Market



OEM Manufacturing

Custom packaging and customer-branded products



White Label Programs

Launch products under your own brand



BUILD

Build & Scale with Dyadic



Custom Development

Collaborative development of tailored proteins



Commercial Manufacturing

Scalable production from development through commercial scale



POWERED BY

Our Platform Advantages

- ✓ 100% Recombinant
- ✓ Animal-Origin Free
- ✓ Commercial Manufacturing
- ✓ Powered by C1® & Dapibus™ Platform



AVAILABLE TODAY



Research Use Only (RUO)

AVAILABLE UPON REQUEST



ISO Manufacturing



GMP Manufacturing

Proven Commercialization Pathway

From engineered cell line to commercial product launch in <24 months



COMMERCIAL VALIDATION

PROLIANT
HEALTH & BIOLOGICALS

AlbuFreeDX®
Recombinant Human Albumin (rHA)

LAUNCHED IN LESS THAN 24 MONTHS

- ✓ Licensed Dyadic production strain
- ✓ Process development completed
- ✓ Commercial manufacturing established
- ✓ Product launched in **less than 24 months**
- ✓ Commercially available today

WHY DYADIC ACCELERATES COMMERCIALIZATION



RAPID DEVELOPMENT
Stable strains
in ~7 weeks



HIGH-YIELD EXPRESSION
Secreted protein
expression



COMMERCIAL SCALE
1L to >100,000L
fermentation



PROCESS OPTIMIZATION
USP & DSP
support



MANUFACTURING PARTNERS
Dyadic + Fermbox
capabilities



FASTER MARKET ENTRY
Proven path to
commercial launch

LICENSE

DEVELOP

SCALE

LAUNCH

Technology platforms engineered for scalable commercial execution.

Let's Explore What's Possible

Whether organizations need products, manufacturing support or strategic collaboration, Dyadic and Fermbox offer flexible paths to partnership.



BUY Commercial Products

Immediate access to off-the-shelf solutions and rapid deployment across global markets.



BUILD Custom Development

Innovative co-development and technical collaboration for bespoke biological assets.



PARTNER Licensing & Manufacturing

Strategic scale-up and commercialization partnerships with flexible licensing models.



Product Supply



OEM/White-label



Custom Development



CDMO Services



Strategic Alliances

**BIO 2026
MEET US**

Development

Manufacturing

Commercialization

Integrated engagement models from early development through large-scale global supply.

Thank You!

info@dyadic.com