

World's First Live Attenuated H9N2 Avian Influenza Vaccine



- **Headquarters:** Hangzhou, China
- Dedicated to establishing a globally leading biologics development platform based on viral recombinant technology.
- Seeking global partners to develop, register and commercialize *DIFF-H9N2*.

Company Profile

- Through advancements in viral-attenuation techniques, targeted gene delivery systems, and vector-controllability mechanisms, DIFF's platform—built upon recombinant virus technology—enables broad therapeutic applications across vaccines, oncology treatments, gene therapy approaches, and antiviral drug development.
- DIFF's IP portfolio comprises **80+ patent applications**, with **10+ international PCT applications**.

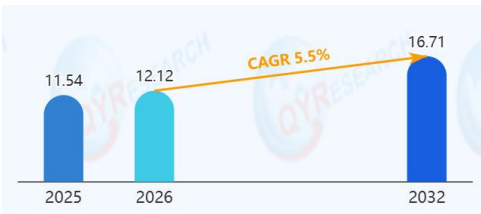
Product Overview

Powered by the world's first M2 gene modification technology, our precisely attenuated vaccine, DIFF-H9N2, preserves full immunogenicity to deliver:

- ✓ **Triple Immune Protection:** Activates mucosal, humoral, and cellular immunity to block viral invasion at the very first line of defense.
- ✓ **Needle-free Administration:** Intranasal, eye drop, or spray administration eliminates injection stress and lowers labor costs.
- ✓ **Day-One Vaccination:** Protects chicks and ducklings from the start, bridging the immunity gap and ensuring full-cycle protection.
- ✓ **Enhanced Biosafety:** Gene-modified strains prevent viral shedding while maintaining disease surveillance integrity.

Beyond Homogeneous Competition: A \$1bn+ Blockbuster Opportunity

Global Avian Influenza Vaccine Market: USD 1.15bn+ and Growing



Source: QYResearch

Today's market is dominated by inactivated vaccines, but they face critical limitations:

- **Mucosal Gap** – Over 50% of avian pathogens invade via mucosal routes, yet inactivated vaccines fail to trigger mucosal immunity.
- **Transmission Risk** – Inactivated vaccines cannot block viral replication or shedding, enabling continued environmental spread.
- **Limited Efficacy** – Preexisting vector antibodies compromise immune response, reducing overall protective coverage.

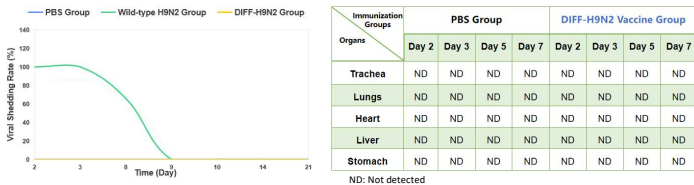
Unlike conventional inactivated vaccines that mainly induce systemic IgG responses, DIFF-H9N2 elicits robust mucosal immunity (sIgA) at the primary sites of viral infection, providing superior frontline protection.

DIFF-H9N2 Offers:

- **Direct Mucosal Protection** – Blocks viral colonization at the respiratory tract.
- **Broad Cross-Protection** – Proprietary M2-based attenuation technology enhances protection against diverse H9N2 variants.
- **Reduced Viral Transmission** – Limits viral replication and shedding, helping interrupt disease spread.
- **Needle-Free Administration** – Improves animal welfare, vaccination efficiency, and ease of mass immunization.

Product Highlights

Post-Immunization Viral Shedding



SPF chickens: No live virus was detected in pharyngeal or cloacal swabs within 2 weeks post-vaccination.

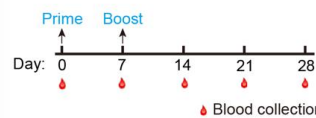
SPF chickens: No live virus was detected in any organ or tissue on days 2, 3, 5, and 7 post-vaccination.

No viral shedding, high safety profile, no risk of horizontal transmission

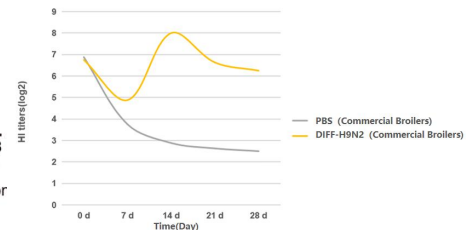
HI Antibody Response after Vaccination

Subject: Commercial Broilers (10-Day-Old)

Immunization Schedule



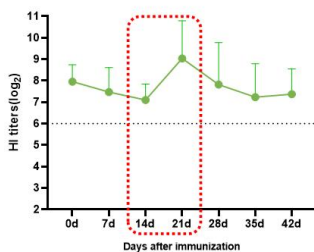
Route of Administration: Intranasal + Ocular



Two doses induced high levels of HI antibodies (HI > 2⁶)

Field Trial (Immunization of 3,000 Chickens) — Real-World Clinical Efficacy

HI Antibody Response in H9N2 Field Trial



HI antibody levels maintained above 2⁶ (≥64).

Antibody response not hindered by maternal-derived antibodies, with rapid onset of immunity after vaccination.

Challenge Study (Two-dose Immunizations)

Immunization: Intranasal and ocular instillation; 6.5 lgEID₅₀/bird, 0.1 ml
Challenge: H9N2 wild-type GD2 strain, 6 lgEID₅₀/bird, 0.1 ml

Group	PBS Immunization Group					DIFF-H9N2 Immunization Group 1					DIFF-H9N2 Immunization Group 2				
S.No.	1	2	3	4	5	1	2	3	4	5	6	7	8	9	10
Challenge Method	Intranasal-ocular					Intranasal-ocular					Intravenous				
Swab Type	Oropharyngeal swab					Oropharyngeal swab					Oropharyngeal swab				
Pre-challenge HI Antibody (nlog2)	<2	<2	<2	<2	<2	8	6	7	7	5	7	7	8	8	7
Viral Shedding Detection	Post-challenge D3	+	+	+	+	-	-	-	-	-	-	-	-	-	-
	Post-challenge D5	+	+	+	+	-	-	-	-	-	-	-	-	-	-

Notes: (+) positive detection of viral shedding; (-) no viral shedding detected.

No live virus was detected in oropharyngeal swabs on day 3 and day 5 post-challenge.