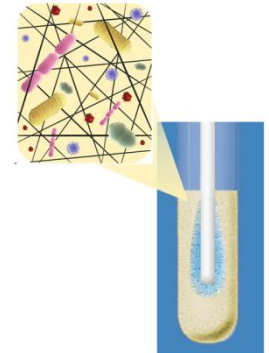


Luna Innovations has developed a unique inorganic-organic hybrid encapsulation matrix that has been successfully used to stabilize biological specimens for a variety of applications.

Biospecimen Preservation

Accurate pathogen detection requires high quality biological specimens, which are dependent on proper collection, transport, and storage. The ability to rapidly detect and identify infectious organisms is critical for the accurate diagnosis of seasonal and sporadic outbreaks, emerging pathogens and bioterrorism agents. Current transportation methods rely on wet ice and cold storage, refrigeration (2 to 8°C) or freezing (-80°C) if testing is delayed in order to retain sample integrity. For maximum utility specimen samples must contain viable pathogens (bacteria/virus).

To preserve sample integrity throughout the entire collection, transport, and storage process LUNA is developing a preservation matrix that increases viral and bacterial viability without temperature control requirements. LUNA has successfully demonstrated:



biospecimen swab encapsulated in stabilizing matrix

- 40% increase in ambient storage viability of Feline calicivirus (14 days vs. 10 days) as compared to commercial transport system (Copan UTM).
- Three-fold increase for *Neisseria gonorrhoeae* (72hrs vs. 24hrs) for pathogens stored in our stabilization matrix as compared to commercial transport system (Copan Amies).

Formulation	Day 0 (cfu/mL)	Day 1 (cfu/mL)	Day 2 (cfu/mL)	Day 3 (cfu/mL)
Amies (Copan)	2.7×10^8	2.9×10^5	none	none
Buffer Control	3.9×10^8	2.2×10^7	2.4×10^3	none
Luna Formulation 1	2.7×10^8	5.1×10^7	4.4×10^4	3.8×10^4
Luna Formulation 2	3.9×10^8	n/a	5.5×10^5	2.5×10^4

Viability of *Neisseria Gonorrhoeae* (cfu/mL) samples stored under ambient conditions.

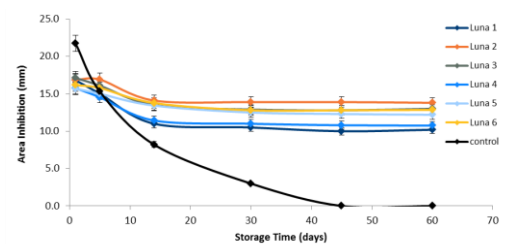
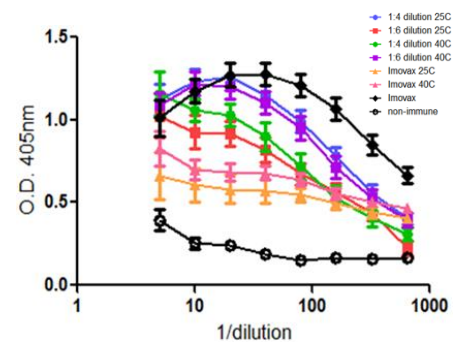
Therapeutic Reagents

The necessity of cold-chain transport is a critical deficiency for a large number of vaccines, therapeutics, and drugs. In order to eliminate the need for cold-chain transport required to maintain potency of thermosensitive compounds, Luna is utilizing its biomimetic sol-gel based preservation matrix to stabilize therapeutic reagent formulations. The sol-gel matrix provides mechanical and chemical stability to the encapsulated reagents, resulting in substantially enhanced thermostability and storage lifetimes.

- Enhanced rabies vaccine (Ivomax) initiated immune response (in dosed mice) after 28 days storage at 25 °C and 40 °C using Luna formulations.
- Increased potency of stabilized antibiotic (bacitracin) in Luna formulations as compared to solution control.

(Top Right) Immune response (serum rabies virus-specific antibody titer) of mice dosed with stabilized Ivomax formulations (stored for 28 days at 25°C and 40°C).

(Bottom Right) Zone of inhibition (potency) testing of bacitracin in Luna formulations as compared to solution control.



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