INSTANOSIS
Bringing High Performance Diagnostics to Patient's Side

Lateral Flow Assay Development Starter Kit

Store gold nanoparticle at 4 ℃ upon receiving.
All other components are stored at room temperature.

Website: https://instanosis.com/products-by-application/
Email: support@instanosis.com
Phone: 610-337-0269

Product Name: Lateral Flow Assay Development Starter Kit

Catalog Number: LFASK26

1. Product Description

This kit provides all the essential raw materials required to develop a lateral flow immunoassay. It also provides tools for the quick development of a fully functional prototype without the need for any instrumentation.

2. Kit Contents

Component	Size	Quantity	Description
Pre-laminated cards	18 cm × 6.0 cm	10	PVC backing card pre-laminated with nitrocellulose (NC) membrane and absorbent pad
Conjugate pad	18 cm × 0.8 cm	10	Glass fiber matrix for drying gold nanoparticles
Sample pad	18 cm × 2.0 cm	10	Pre-treated pad for sample filtration and flow
Gold nanoparticle	4 mL	1	40 nm diameter OD 20 colloid gold for antibody conjugation
pH buffer	1 mL	1	For adjust the pH of gold nanoparticle during conjugation
2× blocking buffer	4 mL	1	For stabilizing and blocking the non-specific binding after gold nanoparticle conjugation
Dispensing nib	--	50	A tool for manually dispensing the Control and Test lines on NC membrane
Plastic cassette	--	50 (front & back)	Protective housing for the test strips

3. Materials required but not provided

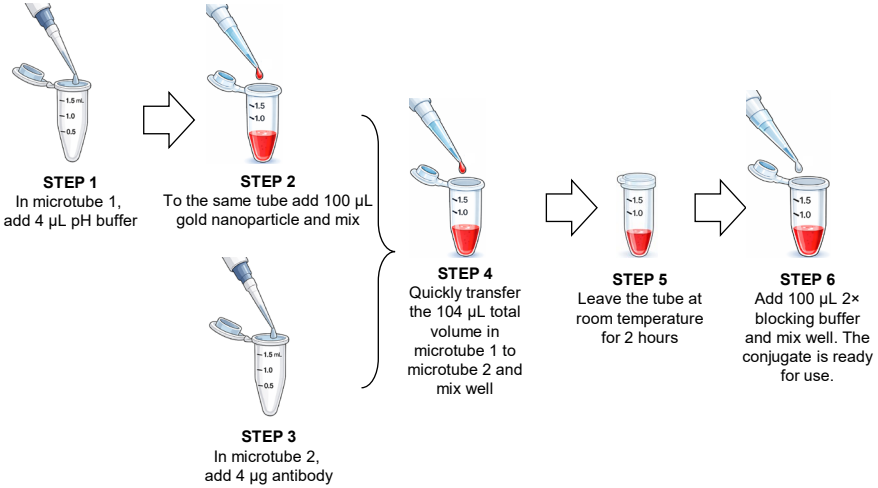
- Protein reagents for the control, test lines, and gold nanoparticle conjugation
- Ruler: for guiding the manual line dispensing
- Scissors: for cutting the card into desired sizes
- Pipette & tips: for handling small volumes of liquid
- Parafilm: for placing a small volume of liquid droplet
- Forceps: for holding the pads

See Back for Instructions

3. Instructions for use

3.1 Gold nanoparticle conjugation

(*The following protocol is for conjugating 100 µL of nanoparticles. For alternative volumes, adjust the scale of all components accordingly*)



STEP 1
In microtube 1, add 4 µL pH buffer

STEP 2
To the same tube add 100 µL gold nanoparticle and mix

STEP 3
In microtube 2, add 4 µg antibody

STEP 4
Quickly transfer the 104 µL total volume in microtube 1 to microtube 2 and mix well

STEP 5
Leave the tube at room temperature for 2 hours

STEP 6
Add 100 µL 2× blocking buffer and mix well. The conjugate is ready for use.

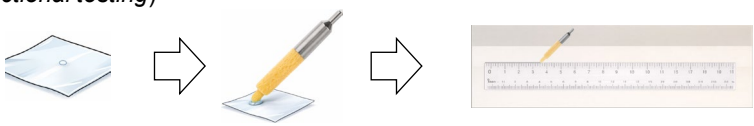
3.2 Drying the gold nanoparticle on conjugate pad

(*For manufacturing, nanoparticles are sprayed onto the pad using automated equipment. The below procedure provides a manual alternative for quick-start development and functional testing*)

- Cut the conjugate pad to the desired length
- Use a pipet, dispense the conjugated gold nanoparticles onto the conjugate pad, ensuring even distribution
- Place the conjugate pad on a flat surface and allow it to air-dry completely in a low-humidity environment

3.3 Control and test line drawing

(*For manufacturing, lines are dispensed using automated equipment. The below procedure provides a manual alternative for quick-start development and functional testing*)



STEP 1
On a piece of parafilm, add desired volume of the line reagent to form a droplet (usually 10 to 50 µL)

STEP 2
Dip the yellow end of the provided nib into the droplet to absorb the reagent

STEP 3
Use the web nib to draw a line along a ruler on the NC membrane on the pre-laminated card. The positions of the control and test lines are approximately 2.6 cm and 3.1 cm from the top edge of the absorbent pad, respectively. Repeat the drawing several times until a visible wet line is formed. Be gentle to avoid damaging the NC membrane.

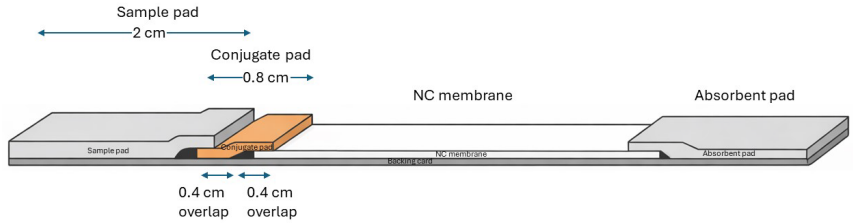
3.4 Card assembly

Attach the Conjugate Pad:

- Peel off the protective cover beneath the NC membrane. Place the dried conjugate pad so that it overlaps the bottom of the NC membrane by 0.4 cm (see image below).

Attach the Sample Pad:

- Peel off the bottom protective cover. Place the sample pad so that it overlaps the conjugate pad by 0.4 cm (see image below).



3.5 Strip cutting

- Use a pair of scissors to cut the card into 4 mm width strips

3.6 Cassette assembling

STEP 1
Get the front and back panels of the cassette

STEP 2
Put the strip into the middle slot and close the cassette by pressing

3.7 Troubleshooting

Problem observed	Recommended action
Nanoparticle become purple or precipitate after conjugation	A pH titration is required for the conjugation.100 mM buffers with pH range 7 - 10 are recommended for the titration. Pre-made buffers are available in Product LFAOK26.
Low assay sensitivity	Increase the amounts of antibodies in conjugation and test line coating. Change to higher affinity antibodies.
Non-specific binding	Decrease the amounts of antibodies in conjugation and test line coating. Change to higher specificity antibodies.