www.vectorlabs.com
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ANTIBODY-OLIGONUCLEOTIDE ALL-IN-ONE™ CONJUGATION KIT

SKU: A-9202-001



DESCRIPTION

The Antibody-Oligonucleotide All-in-One Conjugation Kit uses patented SoluLINK® bioconjugation technology to link an antibody to an oligonucleotide. A succinimidyl-4-formylbenzamide (S-4FB)-modified oligonucleotide and succinimidyl-6-hydrazino-nicotinamide (S-HyNic)-modified antibody form an antibody-oligonucleotide conjugate. This kit is specifically designed to conjugate 100 µg of antibody to any amino-modified oligonucleotide in the 20-60 nucleotide range. Key **Features:** • Any mammalian monoclonal or polyclonal IgG isotype antibody can be conjugated to the oligonucleotide and purified with approximately 4 hours of total hands-on time. • SoluLINK bioconjugation technology forms a stable and UV-traceable bis-aryl hydrazone bond with measurable absorbance at 354 nm, which has a molar extinction coefficient of 29,000 L mol^{-1} cm^{-1}. • The conjugation reaction is spectrophotometrically quantifiable due to the formation of a chromophoric conjugate bond.

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SPECIFICATIONS

Reactivity	Amine
Unit Size	1 Kit
Storage Instructions	2° – 8°C – Do Not Freeze
Applications	In Situ Proximity Ligation
Conjugate	Antibody
Label	Oligonucleotide

KIT COMPONENTS

- S-HyNic (100 µg)
- Oligo Resuspension Solution (1 mL)
- 1X Modification Buffer (1.5 mL)
- Bead Wash Buffer A (5 mL)
- Bead Elution Buffer A (250 µL)
- Red Cap Spin Column (2)
- Yellow Cap Spin Column A (1)
- Blue Cap Spin Column D (2)
- Anhydrous DMF (1.5 mL)
- 2-Hydrazinopyridine (2-HP) Reagent (500 µL)
- Affinity Magnetic Beads (100 µL)
- 2 mL Collection Tubes (14)

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• S-4FB (1 mg)

• Brown Cap Spin Column C (2)

TECHNICAL INFORMATION

Antibody-Oligonucleotide All-in-One Conjugation Kit

Overview of Conjugation

1) Conjugation Chemistry

The Antibody-Oligonucleotide All-in-One Conjugation kit uses the SoluLINK patented conjugation technology to link an antibody to an oligonucleotide, as illustrated in Figure 1. The first stage of the process begins with the labeling of a 3’ or 5’- amino-modified oligonucleotide withS-4FB. This amine-reactive NHS ester incorporates an aromatic aldehyde functional group, formylbenzamide (4FB), at the desired terminus of the oligonucleotide.

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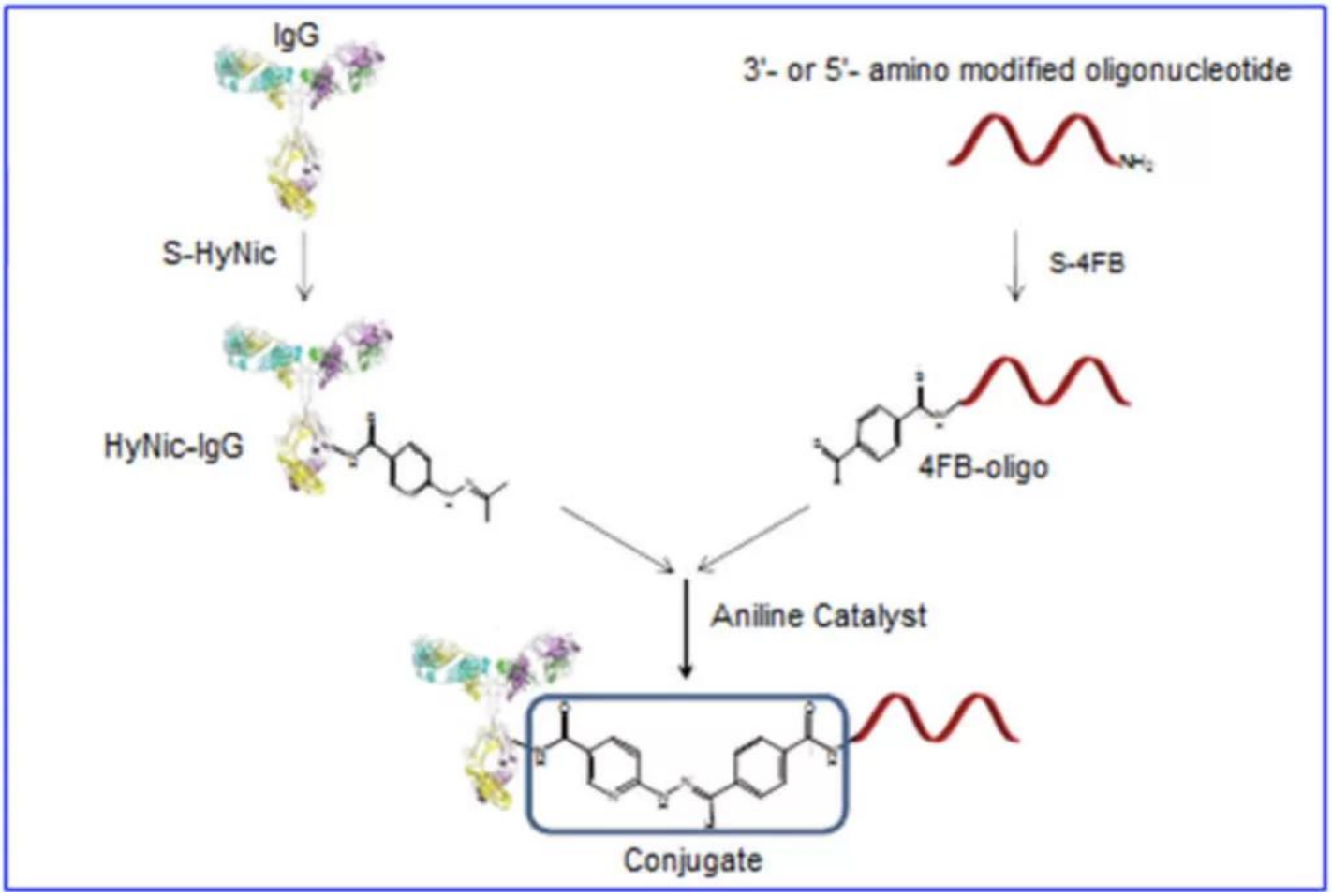


Figure 1. Reaction of a HyNic-modified IgG with a 4FB-modified oligo leads to the rapid formation of a stable antibody-oligonucleotide conjugate.

In stage two of the process, a polyclonal or monoclonal antibody (100 µg) is modified using the complementary linker S-HyNic. This NHS-ester reacts with lysine residues, incorporating HyNic functional groups (hydrazinonicotinamide) onto the antibody. In the third and final stage, the two modified biomolecules are mixed together in the presence of a reaction catalyst (aniline) to form the conjugate, after which purification is carried out using a magnetic affinity solid phase.

2) Conjugate Purification

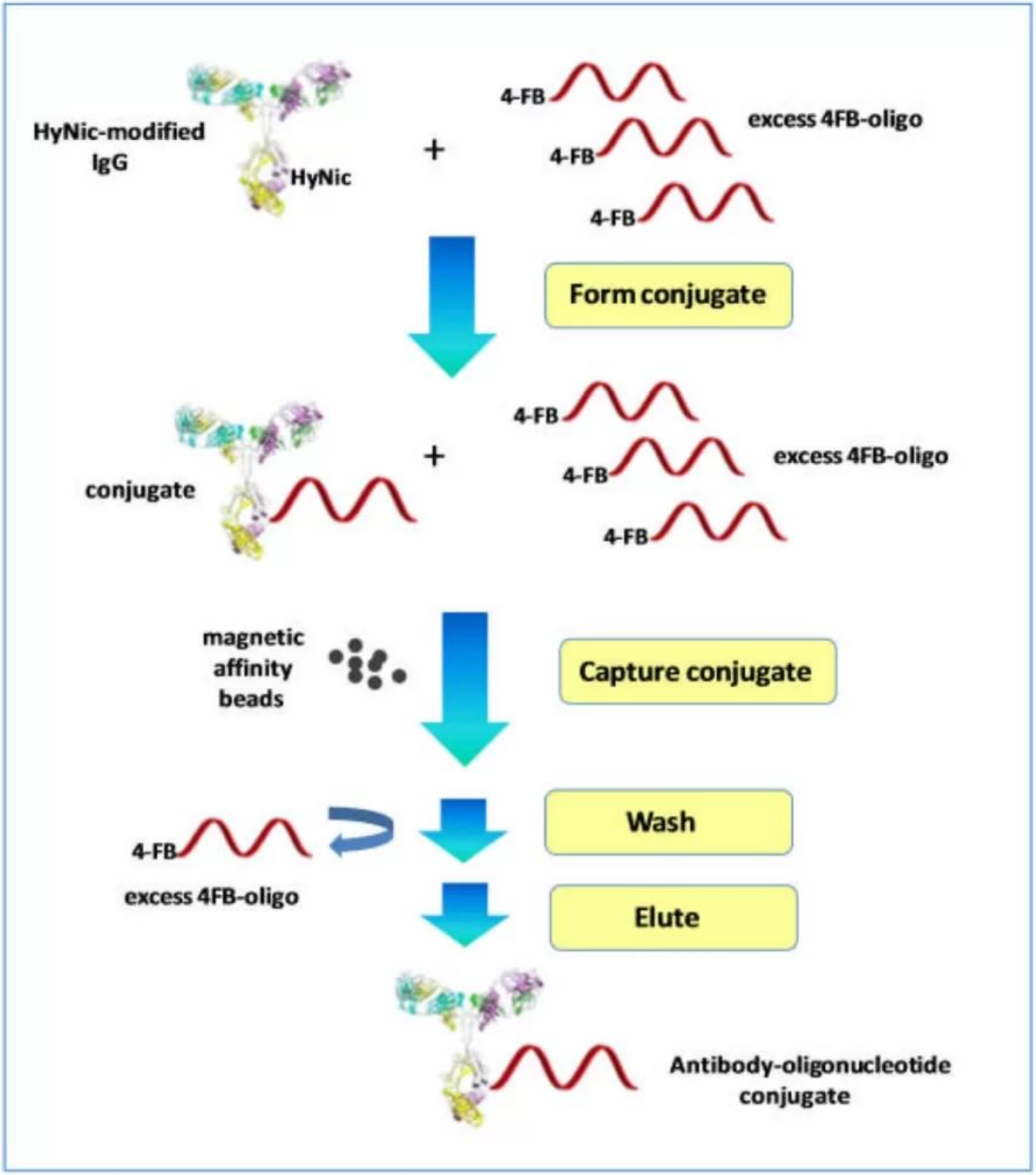
Antibody-oligonucleotide conjugates produced with the All-in-One kit are ready to be used in the most demanding and sensitive of downstream applications. The kit delivers high-purity conjugate virtually free of residual antibody or oligonucleotide (>98%). Reaction conditions are optimized to convert nearly 100% of the antibody into conjugate, leaving only free, excess 4FB-oligo to be removed. Complete conversion of antibody to conjugate simplifies conjugate

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purification as illustrated in Figure 2. Antibody-oligonucleotide conjugate is purified to near homogeneity by selectively binding the conjugate to a magnetic affinity matrix, allowing excess 4FB-oligonucleotide to be washed away. Affinity-bound conjugate is then gently eluted from the matrix and buffer exchanged into long-term storage buffer. **Antibody-oligonucleotide conjugates produced with this kit are stable for up to 1 year when kept at 4°C in storage buffer.**

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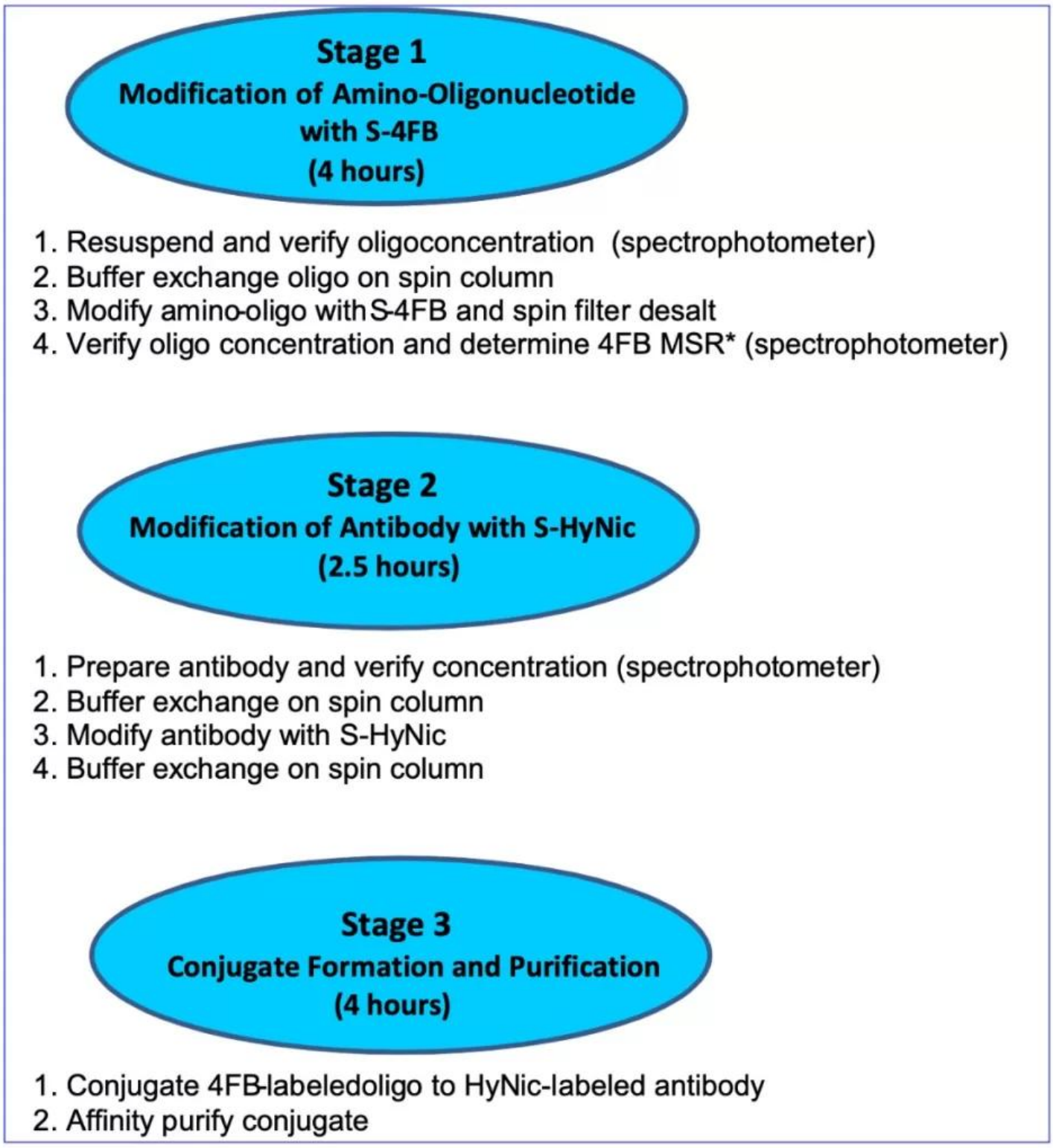


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Figure 2. All-in-One conjugate purification strategy.

All-in-One Conjugation Overview

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* 4FB MSR is an acronym for 4-formylbenzamide molar substitution ratio.

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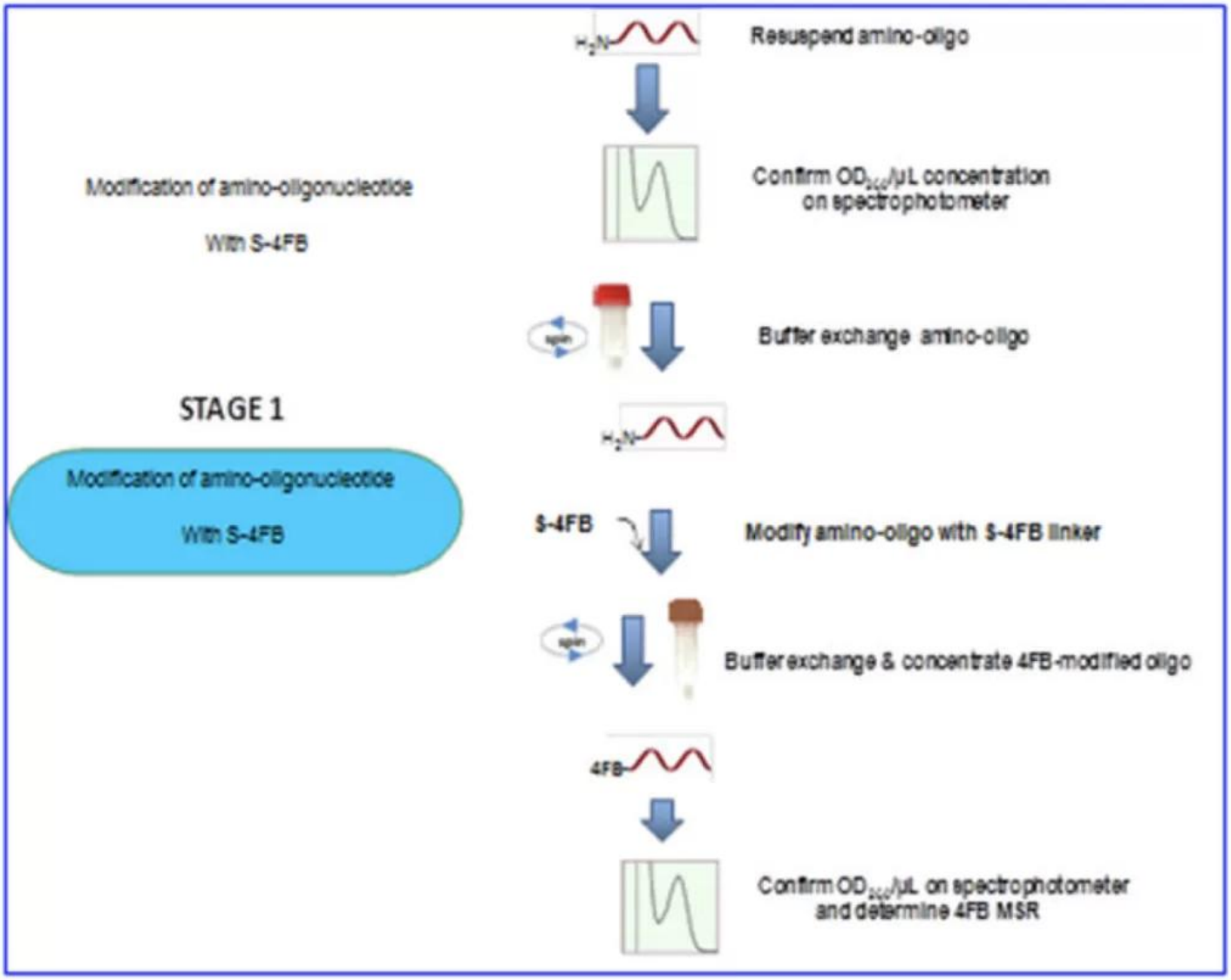


Figure 3. Stage 1 of the process illustrates the modification of an amino-oligonucleotide with the S-4FB linker.

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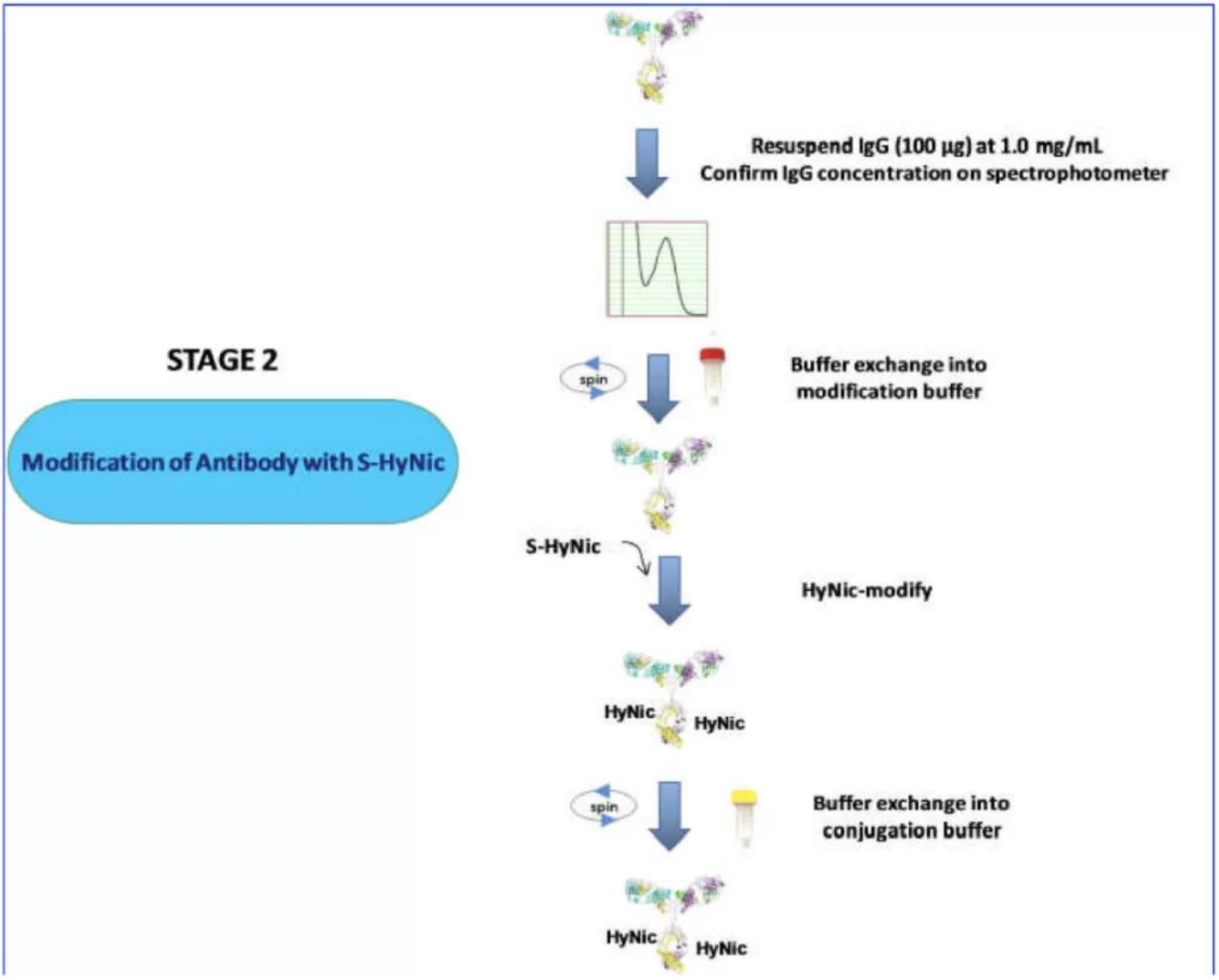


Figure 4. Stage 2 of the process illustrates the modification of IgG using the S-HyNic linker.

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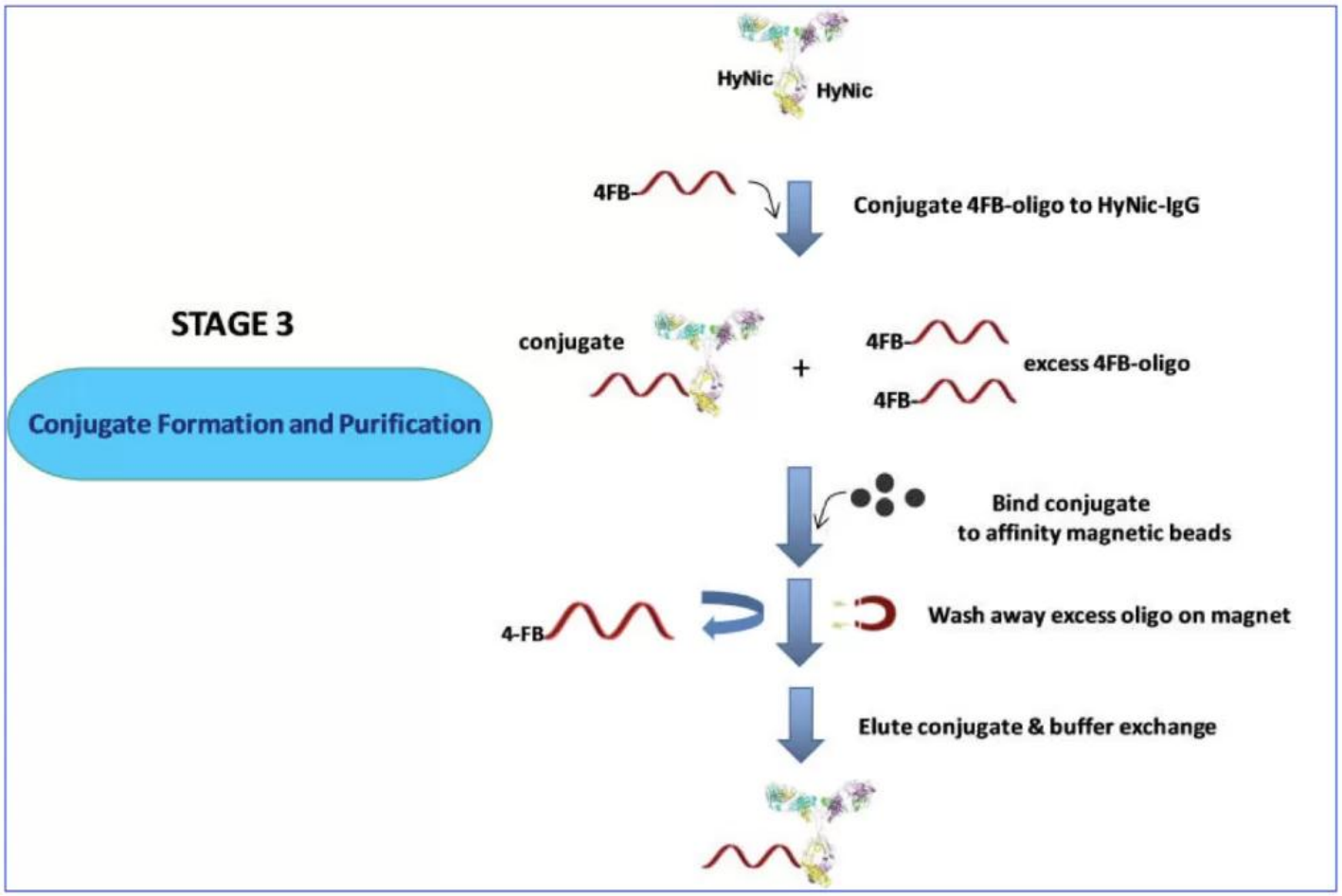


Figure 5. Stage 3 of the process illustrates both the formation and purification of the conjugate.

CITATIONS

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DOCUMENTS

- User Guide
- A-9202-001, Antibody–Oligonucleotide Conjugation Calculator
- Bioconjugation White Paper
- Safety Data Sheet
- Troubleshooting Guide – Bioconjugation
- Concentration of Dilute Antibody Solutions
- Download CoA
- Datasheet

GALLERY IMAGES



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