HAV1052C-T1

NOVAptamer to Hemagglutinin from Avian Influenza A Virus

Target Information

Hemagglutinin

Hemagglutinin (H) is a glycoprotein present on the surface of certain viruses, such as the influenza virus (IV). It enables the virus to bind to host cells by recognizing specific receptors, thus facilitating viral entry. This protein undergoes frequent mutations, contributing to the emergence of new viral strains. It is also a major target of antibodies, playing a key role in the immune response and vaccine development. For aptamer selection, a recombinant His-tagged protein from the Avian Influenza A virus, subtype H1N1 (A/Puerto Rico/8/1934), was used.

NOVAptamer HAV1052C-T1

Chemistry: DNA
Size: 37 nt
Molecular weight: 12091 g/mol
Molar extinction coefficient: 340600 $Lmol^{-1}cm^{-1}$
Binding buffer: 20 mM HEPES, 20 mM CH_3COONa, 140 mM CH_3COOK, 3 mM $(CH_3COO)_2Mg$, pH 7.4

Folding an aptamer into its tertiary structure is essential for optimal target binding. To achieve this, resuspend the aptamer in assay buffer, heat to 95°C (~2 minutes), then allow to cool to room temperature (~5 minutes) before use.

Affinity Determination

Affinity Determination Method: Surface plasmon resonance (SPR)
K_D in the binding buffer: 6 nM
Specificity:

- cross reacts with: Hemagglutinin H5 from avian IV (K_D: 20 nM)
  Neuraminidase N1 from avian IV (K_D ~100 nM)

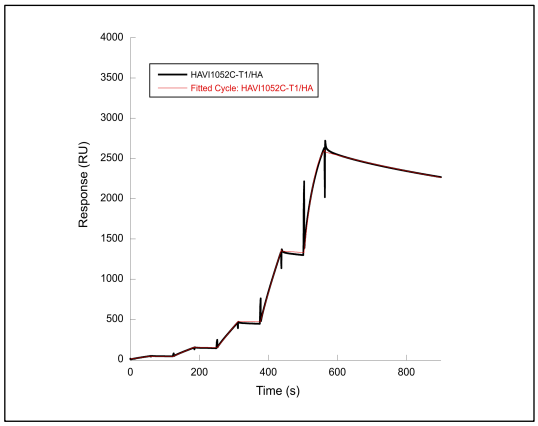

Figure 1. *The binding kinetics determined by single-cycle kinetics SPR analysis. Kinetic parameters were determined with the global fitting function using a 1:1 binding model. Assay was performed against H1 from avian IV (10 nM - 810 nM) in binding buffer at 24°C.*

Key advantages offered by aptamers over other affinity reagents, notably antibodies

✓	High affinity and selectivity
✓	Thermostable, long shelf life
✓	Animal- and cell-free selection
✓	Chemical synthesis
✓	Batch to batch reproducibility

Custom synthesis

- **Available at different scales** – upon request, up to 100 nanomoles
- **Various purification modes** – adapted to specific experimental requests
- **Extensive conjugation options for diverse applications** :
- Grafting: NH_2, SH, biotin, etc.
- Sensing: fluorescent dyes, nanoparticles, redox groups
- Cross-linking: click chemistry reagents
- **Molecular beacons** - possible hybridization with a complementary oligonucleotide to form a bimolecular beacon, enabling quantitative detection

Applications (For Research Use Only)

- Biosensors for quick and sensitive influenza virus detection
- Lateral flow assays
- Therapeutics and vaccine development

Contact information

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